Combined Author Index

H.I. Aaronsora 2631-2637A, 1923-1931A
T. Ab 911-918A
E. Abramoad 949-959A
P. Acostas 1241-1248A
P.W. Adcoctf 505-518B
A.H. Advanra 1325-1331A
R.C. Agarwalsa 851-856A
V. Agarwalie 851-856A
J. Ágreto 1127-1134A
S.M. Ahmadan 1097-1102A
S.H. Aar 1713-1723A
R.M. Aikin, Jrvl 2461-2468A
O.E. Afarcóre 961-968A
C. Aldricel 303-306B
E. Allairr 193-205B
C. Allairar 221-226B
M. Allibersh 645-651B
D.E. Almavs 1033-1040A
A.T. Alpavs 969-983A
S.L. Amepa 723-732A
J.P. Andersoei 17-35A
K.R. Andersosc 2235-2245A
P.M. Andersoid 415-425A
T.M. Angelihy 1169-1183A
D.P. Antiat 2675-2681A, 2827-2828A
S.D. Antolovicer 2469-2476A
P.N. Anyalebechlo 111-122B
H. Arakbu 873-876A
S. Asaar 165-170B
R. Asthaner 225-230A
P.B. Aswatlo 287-297A, 1041-1050A
C. Atkinsora 2683-2694A

S.S. Babul 499-508A
J.B. Baen 1185-1197A, 1199-1208A
F. Barlaar 2783-2795A, 1209-1216A
B.T. Bassleer 1301-1308A
C.C. Battailng 865-870A
R.G. Bautistia 171-183B
R.J. Bayuzic 1301-1308A
C. Beckermanog 1081-1093A
M.G. Benmo 203-212A, 213-219A
A.N. Beriod 761-771B
A.E. Betancourhl 917-925B, 927-935B
H.K.D.H. Bhadeshi 1603-1611A, 705-714A
S.C. Bhadurs, 435-441B
J.F. Bingerft 461-472A
N.C. Birish 1693-1702A
S.K. Biswaha 2173-2179A
D. Blackburhy 321-331B
L. Blaur 257-266A
R.L. Bodnane 665-675A, 763-773A
D.L. Bourelas 677-685A
P. Bracconra 509-520A
A.M. Brasea 2131-2143A, 1159-1167A
R.F. Brebricng 2331-2340A
R.M. Bribein 2461-2468A
J.K. Brimacombil 681-693B
A. Bronsota 1325-1331A
J. Bygdètf 519-525B

G. Carr 1301-1308A
M.A.S.C. Castello-Branche 359-371B
E. Cesarce 687-695A
K.S. Chaat 299-308A, 1217-1228A
A. Chanfreaom 2117-2130A
C.Y. Chanso 545-555A
E. Channo 545-555A
Y.A. Chanpe 656-658A
K. Chattopadhya 2631-2637A
M.C. ChaturvedJr 1733-1745A
K. Chaudhurki 1109-1118A
C.-C. Cheep 415-423B
G. Chett 2639-2646A
H. Cheso 17-35A, 1561-1573A
J.K. Cheae 2073-2082A
L.H. Cheze 821-825A, 557-561A, 2305-2309A
S.-L. Cheen 656-658A
S.F. Cheos 557-561A
W.X. Chehs 539-544A
J. Chende 2117-2130A, 2131-2143A, 1159-1167A

P.R. Chidambaralo 2497-2506A
B.A. Chinc 193-202A
W.-C. Chiola 985-992A
S.-W. Chan 5-13B
R. Choubec 993-1004A
C.K. Choca 135-145A
H.-J. Chrisst 407-413A
H.J. Christs 401-406A
L. Christodoulorn 2181-2197A
S. ChWa 637-642A
K. Chuneh 1209-1216A
M.J. Cieslave 697-704A, 789-798A
M.J. Ciman 1747-1760A
R.K. ClarPr 89-97A
L.M. Comptoes 2145-2152A
A.C. Coroneoav 505-518B
F. Cortiaor 241-248A
A. Costa E Silvlo 5-15A
J.D. Cotto, 461-472A
T.H. Courtneog 147-158A, 2091-2099A
A.W. Cramoh 626-628B, 306-308B, 939-942B
C.E. Crosda 2705-2714A

G.S. Daehen 2723-2735A, 589-598A, 415-425A
J.A. Dantziro 1063-1079A, 443-457B
P.A. Davidsoav 293-302B
C.L. Davio, 563-573A
M.A. Dayanandah 1649-1653A
M.M. de Lugpo 1325-1331A
A.J. DeArdyc 277-286A
P. Desclaugp 43-51B, 221-226B
D.P. DeWitij 449-462B
B.K. Dhindank 2525-2534A
P.S. Dhurjatsa 761-771B
Q.Z. Diara 1051-1062A
M. Djonka 481-490B
R.C. Doart 381-388A
D.B. Dreisingeer 473-480B
B. Dreverm 599-605A
R.A.L. Drehs 2357-2370A
C.A. Drewieai 249-255A, 1119-1125A
P.-E. Droenera 521-530A
W.J. Drurrs 919-928A
P. Dubva 351-358B
P.M. Dudoa 623-625B
P.S. Dunna 461-472A
G. Duttos 1591-1602A
S.K. Duttit 15-26B

J.C. Earthmaic 2477-2482A
A. Echeverrila 1579-1590A
G.R. Edwardhy 2083-2090A, 2497-2506A, 697-704A, 789-798A, 2705-2714A
P. Ehrharur 427-435A
D. Eliezeaa 949-959A
A. Engströdе 1127-1134A
J.E. Eppersoma 17-35A
R.H. Eriea 53-61B, 549-559B
W.J. ErringtoMe 839-853B
L. Espiár 599-605A
F. Espielnr 185-191B
N. Eustathopoulor 599-605A
E. Evangelistij 257-266A
J.W. Evanth 937-939B, 333-340B, 341-349B

C.G. Falr 1015-1023A
M. Fernándeul 185-191B
M.C. Flemingia 1747-1760A, 2295-2301A
E. Fleurka 99-109A
S.C. Floors 293-302B
J.C. Folead 230-233A
D. Françoiha 1185-1197A, 1199-1208A
D.J. Fraea 373-378B
H. Fredrikssoge 123-133B
C. Freiburso 2535-2538A
A. Frenot 281-291B
R.J. Fruehar- 306-308B, 245-253B
H. Fuz 637-642A

H. Fujiwarco 695-701B
T. Furukawad 2647-2653A

I. Gaballarh 193-205B
W.F. Galwi 2837-2840A
Ch.-A. Gandimb 629-635A
R.P. Ganglofti 365-379A
U. Gangopadhyal 607-615A
C.I. Garcies 277-286A
G. Gasoa 509-520A
D.R. Gaskelad 449-462B
M.A. Gaudetbe 775-787A
V.G. GavriljudJ 889-909A
A. Ghosra 1095-1097A, 15-26B
A.K. Ghosra 2017-2026A, 2027-2038A, 2039-2048A, 2049-2061A
S. Ghosop 2723-2735A
J.C. Gibelinkd 2453-2460A, 2235-2245A
J.B. Gilbert, I o 773-778B
D. Gilboay 1199-1208A
P.P. Gillien 961-968A
R.S. Gilmoree 2321-2329A
K.A. Gingeric 857-864A
J. Glazenc 1249-1257A
T. Gnanasekara 63-72B
D.D. Goettscav 1063-1079A
K.M. Gogginai 2101-2109A
A.M. Gokhalom 919-928A
J.I. Goldsteiya 1627-1637A, 1639-1648A, 249-255A, 1119-1125A
I.S. Golovi, 111-124A
J. Gonzaleop 1159-1167A
G. González-Donce 1241-1248A
E. GoKl 57-61A, 715-721A
K. Gotva 405-413B
S. Gowrod 437-448A
P. Granatka 561-568B
G.T. Gray, Ils 1025-1031A
N.B. Graer 873-884B
J.R. Grozod 2235-2245A
R.N. Grugele 865-870A
J.E. Gruzleskya 1761-1773A
Q. Guim 73-77B
D. Guptiv 227-233B
R.I.L. GuthriMe 855-864B, 308-312B

S.A. Hacknees 1613-1625A
J.S. Haggerts, 1747-1760A
E.L. Halno 213-219A
M.G. Halur 1797-1819A
Y. Hamadmi 2581-2599A
B. Hakk 2285-2294A
K.N. Hato 817-827B
Y. Han 873-876A
S.S. Hanseez 665-675A, 763-773A
S. Hariprasaav 1005-1014A
C.P. Harpean 1591-1602A
K. Hashimotst 321-330A
F.H. Hashmeo 2421-2425A
F. Hassanil 125-133A
C. Haund 2131-2143A
S. Hayashye 405-413B, 741-748B
K. Hayasca 349-356A
L.A. Heldps 1285-1290A
D.E. Hendrir- 505-518B
R.K. Herrmania 89-97A
D.D. Himbeaulae 135-145A
J.P. Hirtos 2655-2673A
A.B. Hmeldy 865-870A
N.-J. Hen 415-423B
P.W. Hochanadeol 697-704A, 789-798A
F. Hodagu 645-651B
P.D. Hodgsove 389-400A
P.B. Hoffmasi 2453-2460A
W.H. Hofmeiste 1301-1308A
J. Hogartur 111-122B
L. Hoglunju 1127-1134A
M-H. Honan 2828-2831A
K. Honod 499-508A
R.L. Howartf 27-32B
J.M. Howoc 617-627A
D.K. Hsuf 799-809A, 811-819A
T.-C.J. Hsis 415-423B
C.-T. Hmu 985-992A
X. Huanen 527-547B
G.R. Hugaw 1841-1856A

R.S. Hyda 1229-1240A
D.A. Hyndmani 623-625B

M. Ichinoseb 531-537A
E. Ichismd 695-701B
Y. Iguchau 405-413B
T.-H. Ihaa 1575-1578A
A. Inouol 1323-1325A
R. Inouin 235-244B
H. Ipsere 63-72B
K. Ishidpp 473-485A, 531-537A
F. Ishikawna 929-936A
K. ItBr 703-711B
N. Itowc 321-330A
M. Iwasha 695-701B
K.M. Iyela 207-219B

K.T. Jaco 173-180A, 149-151B
S. Jahanshahav 277-280B
V.K. Jaihe 2753-2768A
J. Janovele 267-275A
H. Jeonso 799-809A, 811-819A
K.L. Jerinie 1005-1014A
S. Jhch 2017-2026A
N. Jhe 1199-1208A
C.C. Jirt 473-485A
J.A. Jiménеal 1241-1248A
W.B. Johnso 761-771B
W.C. Johnsoam 2695-2703A
J.J. Jonabd 125-133A, 389-400A
S.-H. Jonks 643-650A
C.E. Jordaea 937-947A
J.M. Junejam 876-881A
S.B. Jun 873-876A
Y.C. Junaw 1981-1989A

S. Kajiwarso 63-71A
G.M. Kaloa 373-378B
S.V. Kamah 2439-2452A
M.K. Kanmi 2601-2608A, 2609-2614A
S.-J. L. Kande 2828-2831A
V.M. Karbharae 761-771B
D.B. Kasuh 1285-1290A
M.J. Kaufmaoi 5-15A, 2111-2116A
T. Kawamuree 165-170B
W.A. Kaysseeo 677-685A
A.Q. Kha, 2421-2425A
J.M. Khodadadvl 669-680B
M. Kikuchiy 2639-2646A
G.-H. Kiit 2828-2831A
H.K. Kiko 2477-2482A
T.H. Kiep 2213-2223A
Y.-W. Kihe 1217-1228A
T. Kimurti 33-42B
J.E. Kinge 563-573A, 2837-2840A
K. Kishitakst 2542-2546A
R. Kishoren 653-656A
O.J. Kleppez 73-77B
T. Kobayashai 1655-1666A
D. Kocaefde 607-618B
J. Kocol 425-434B
A. Kodaan 2009-2016A
Y. Konishel 165-170B
A.K. Kordoso 761-771B
T. Koseksi 1309-1321A
A.K. Koute 575-588A
A.R. Koymeop 1041-1050A
P.A. Kramepa 1249-1257A
G. Kraus R 1147-1158A, 1229-1240A
S. Kumahe 435-441B
S.G. Kumain 91-96B
K.H. Kudq 47-56A
V.V. Kutumbara 2439-2452A
D. Kwois 2213-2223A

A.K. Lahirss 227-233B
X.K. Lari 669-680B
D.E. Larseam 2181-2197A
E.J. Laverniea 2341-2355A, 135-147B
L. Lawsoue 2265-2274A
H. Ledbettees 2832-2835A
R.J. Ledericsa 1005-1014A
E.H. Leat 193-202A
E.W. Leom 1667-1679A
J.K. Leri 2073-2082A

S.-W. Leer 1575-1578A
S. Leler 2517-2523A
B.A. Lerctl 309-319A
C.-M. Lnm 2615-2619A
H. L U 79-89B
J. Lal 637-642A
P. LW. 2542-2546A
Y.Y. Lou 1015-1023A
P.K. Liatn 799-809A
811-819A
K.C. Liddelhy 171-183B
Y.F. Lirn 821-825A
A.F. Lisovskil 733-740A
C.D. Liiz 545-555A
D.H. Lium 2601-2608A
2609-2614A
H.W. Litt 223-225A
P. Li K 2225-2233A
Q.Q. Liiz 539-544A
S. LiCh 2285-2294A
Y. LiNo 487-497A
81-87A
37-46A
425-434B
Z. LiRa 637-642A
Q.Y. Lonec 1015-1023A
S. Louhenkilpvl 909-916B
W.-K. L' 579-587B
T.S. Lu. 821-825A
557-561A
2305-2309A

X.L. Mre 47-56A
T.M. Maccagnti 125-133A
N. Machidiy 2647-2653A
P.M. Machmeiees 827-837A
P.J. Mackeam 839-853B
T. MakZh 2009-2016A
G. Malakondaiash 2439-2452A
183-192A
K. Malael 193-205B
S.L. Mannady 159-171A
M. Manriques 713-720B
A.R. Mardean 249-255A
937-947A
1119-1125A
2101-2109A
H. Margolidc 1259-1265A
1291-1299A
C.F. Marsdeei 281-291B
J.W. Martirh 651-653A
K. Marukawks 2621-2629A
S. Maruyamte 2621-2629A
T.B. Massalsk, 1579-1590A
73-79A
T. Masumotdc 1323-1325A
M.C. Matay 1147-1158A
D.K. Matlocad 1229-1240A
J.W. Matouseya 463-465B
T. Matsumiyc 1309-1321A
T. Matuszewskre 827-837A
D. MauricPr 147-158A
D.F. Mazumdasa 308-312B
J. Mazumdele 487-497A
37-46A
425-434B
749-759B
D.G. McCartnevl 1097-1102A
H.J. McQueenh 827-837A
R.E. Medranie 961-968A
M.G. Mendirattsk 2769-2781A
X.K. Menma 2609-2614A
1941-1946A
M. Meshigi 721-730B
2265-2274A
M.-Ch. Meyer-Jolr 193-205B
G.M. Michaan 723-732A
M. Millena 857-864A
Y. Minaminyc 873-876A
D.B. Miraclai 2769-2781A
B. Mishrdn 151-154B
N.S. Mishrno 2517-2523A
E.J. Mittenmeije 2797-2814A
F.A. Mohameol 2391-2401A
S. Mohaon 851-856A
J.J. Moorin 151-154B
27-32B
D.G. Morrilo 449-451A
J.G. Morrign 357-364A
J.W. Morris, Jrlo 2715-2722A
1249-1257A
A. Mortenselp 2295-2301A
2145-2152A
H. Mughrabdy 401-406A
407-413A
S. Mukhopadhya 173-180A
P. Mukhopadyha 653-656A
K. Muraleedharakw 1693-1702A
A.S. Murthka 57-61A
G.S. Murtra 2153-2160A

V.M. Nadutoad 889-909A
M. Nagamoram 321-331B

T. Nagasakrs 626-628B
306-308B
939-942B
245-253B
M. Nakamurlo 321-330A
331-340A
Y. Nakamurez 97-101B
385-389B
R. Nakkalis, 1733-1745A
P. Nasoa 871-874A
M. Nastashy 1579-1590A
A. Needlemazk 2403-2420A
839-850A
K. N G 255-263B
265-275B
379-384B
T. Nicholalj 183-192A
J.F. Niti 1841-1856A
M. Niewczady 257-266A
A. Niikuree 1323-1325A
M. Niinomir 1655-1666A
M. Nili Ahmadabad 911-918A
M. Nilmantn 653-660B
T. Nishizaw 473-485A
531-537A
E. Niyamge 911-918A
R.D. Noebli 309-319A
2303-2305A
S. Nourbakhsil 1259-1265A
1291-1299A
I.C. Noyaie 341-347A

T. Ochad 929-936A
S. Ochiaur 349-356A
T.G. O'Connoev 443-457B
T. Ogawfm 1309-1321A
T. Ohidel 911-918A
H. Ohtanno 1981-1989A
H. Ohtsubnt 1981-1989A
H. Ohtsukal 63-71A
S.N. Ojhas 2517-2523A
K. Ojimio 2491-2496A
S. Okaguchyc 1981-1989A
D.L. Olsoma 2083-2090A
K. Osamurbd 349-356A
R. Ouellene 607-618B
R.A. Outlart 89-97A
T. Overfello 154-157B
H. Ozoer 53-61B

E.J. Palmierng 277-286A
D. Paria 357-364A
K. Parur 2199-2205A
K.-T. Parh 2391-2401A
M.R. ParuchurJo 73-79A
B.R. Pattersoge 81-87A
R.A. Patterso, 461-472A
J.H. Payeho 723-732A
Y.T. Penar 1041-1050A
J.H. Perepezk 230-233A
1109-1118A
L.C. Perocchz- 2321-2329A
M. Picassie 281-291B
C. Picornel J 687-695A
S.J. Piemi 669-680B
S.A. Pirzadin 713-720B
D. Poggsh 839-853B
D.H. Poloniju 1135-1146A
W.C. Porr, Jre 365-379A
R.V.R.K. Prasa J 1693-1702A
Y.V.R.K. Prasaak 2173-2179A
2275-2284A
C. Prioump 1185-1197A
1199-1208A
M.P. Pulab 135-145A
993-1004A

C.-M. Raihlom 123-133B
M.D. Raizennha 575-588A
C. Ramachandrge 2517-2523A
W.J. Ranki D 79-89B
865-871B
873-884B
G.R. Ralo 193-202A
K.B.S. Ralo 159-171A
K.V.S.J. Ranh 1095-1097A
M. Rappaik 629-635A
281-291B
B.B. Ratio 2655-2673A
P.L. Ratnaparkhlo 617-627A
J.C. Rawerra 381-388A
K.K. Raig 1095-1097A
R. RaJa 2017-2026A
R.G. Reddne 91-96B
R.C. Reere 2683-2694A
L. Remar 99-109A
W.T. Reynolds, Jr 2639-2646A
2073-2082A
W.H. Rheep 1259-1265A
C.G. Rhodeez 1267-1283A
S.R. Richardav 27-32B
O. Richmonie 1209-1216A

P.R. Riobe 221-223A
C.V. Robineb 697-704A
789-798A
A.D. Rolletnh 1025-1031A
F. Rosenbergees 1775-1777A
T.W. Ross, Ila 2639-2646A
B.R. Rossin 761-771B
C. Roucoulebe 389-400A
I. Rousage 661-668B
O.A. Ruanch 1241-1248A
L.E. Rumanet, 203-212A
213-219A
N. Ryuid 521-530A

V.E. Sackschewskwd 2737-2752A
M. Sadai 687-695A
P. Sadlept 2181-2197A
O. Sahisn 1259-1265A
1291-1299A
S. Sajin 873-876A
1102-1104A
T. Sakurass 499-508A
A.M. Samueso 2247-2263A
F.H. Samueam 1761-1773A
437-448A
S.N. Sankara, 89-97A
N. Sanru 903-907B
D.H. Sastrts 159-171A
S.M.L. Sastrog 1005-1014A
S. Satan 2621-2629A
L.S. Schadleky 341-347A
M.E. Schlesingehi 569-578B
S. Schmaudenk 1725-1731A
A. SchüsseJo 427-435A
C. Schvezoha 397-403B
K. Schwerdtfegerw 497-504B
359-371B
J.R. Scullav 775-787A
S. Seetharamave 149-151B
519-525B
885-891B
876-881A
391-396B
V. Seetharamavl 2753-2768A
V. Seetharmadv 2539-2542A
M. Segarrra 185-191B
W. Shco 705-714A
R.E. Shannoig 799-809A
811-819A
R. Shekhaur 333-340B
341-349B
Y. Sheou 1147-1158A
Y.-L. Sheeh 2403-2420A
839-850A
Z. ShKo 637-642A
K. Shibatdy 487-497A
37-46A
425-434B
749-759B
T. Shigematsla 2647-2653A
K. ShimizAh 2569-2579A
R. Shimpse 97-101B
385-389B
S.-H. Shiat 2815-2826A
R. Shivpurng 1681-1692A
D. Sicheer 589-595B
885-891B
391-396B
V. Singtu 1693-1702A
N.G. Siviouer 255-263B
265-275B
379-384B
G.D.W. Smiter 2538-2539A
P.R. Smitkh 1267-1283A
1267-1283A
H.Y. Sohrr 207-219B
619-623B
M.A.J. Somerad 2797-2814A
J.C. Sopera 1681-1692A
W.S. Spea 1135-1146A
S. Sridhakh 391-396B
N.S. Srinivasaer 876-881A
S.K. Srivastavll 851-856A
P.H. Steevi 427-435A
D.M. Stefanescvl 2525-2534A
A.H. Stigenberhl 2225-2233A
N.S. Stolofoi 1033-1040A
H. Suitem 5-13B
893-902B
33-42B
235-244B
S. Suga 277-280B
X.K. Sudg 539-544A
M. Sundararamaer 653-656A
S. Suresar 2403-2420A
839-850A
R.C. Sussmadr 527-547B
K. Suzukar 903-907B
T. Suzukaw 2815-2826A
321-330A
M. Svobodss 267-275A

J. Takahashcs 1102-1104A
T. Takahashju 929-936A

Y. Tanedea 2491-2496A
M. Taninsa 911-918A
A. Tauqirh 2421-2425A
D.J. Thom 230-233A
S.W. Thompsoll 1147-1158A
J. Thonstaam 661-668B
Y.W. Tiaar 103-109B
R. TintillieaJ 829-835A
F. Togashsh 531-537A
J.M. Togurtf 637-644B
M. Tokudqu 703-711B
A.P. Tsaak 1323-1325A
H.L. Tsaas 1051-1062A
C.C. Tsenh 1147-1158A
S. Tsujdn 753-761A
741-751A
T. Tsujimotsk 321-330A
F. Tsukihashav 903-907B

Y.-L. Uedrc 741-748B
K. Ullakkan 889-909A
T. Umedid 2815-2826A
T.G. University of Southern California Langdo 2309-2311A
G.S. Upadhyayge 2153-2160A
S.C. Ucc 871-874A
T.A. Utigarhy 43-51B

M. Valsarr 159-171A
J.H. van der Merwd 1895-1903A
P.F. Van Der Merwf 829-838B
J.S.J. Van Deventе 303-306B
R.A. Varish 1703-1711A
S.K. Varmli 1325-1331A
R. Vidaha 351-358B
A. Vyrostkoved 267-275A

J.-D. Wagnièrlr 281-291B
R.H. Wagoneam 2723-2735A
W. Wallacer 575-588A
658-659A
C.Y. Wantt 1081-1093A
J.-J. Wannt 2001-2007A
T.G. Wansa 865-870A
Z.C. Wanti 103-109B
Z.G. Wanae 1713-1723A
A. Warczon 43-51B
G.S. Waen 1169-1183A
C.M. Waymaks 2581-2599A
2655-2673A
Q.M. Wega 1941-1946A
F. Weinberrs 397-403B
B.J. Welcri 27-32B
J.-M. Welter- 645-651B
J.A. Weruh 2383-2389A
2161-2171A
2371-2381A
A.C. Wesey 351-358B
D.A. Whitnd 449-462B
D.B. Williamde 1627-1637A
1639-1648A
Z. Witczaed 1703-1711A
S.I. Wrigh' 1025-1031A
X.J. Wav 575-588A
658-659A
Y. Wha 135-147B
P. Wynblatan 607-615A

Z.S. Xinli 1015-1023A
J. Xch 539-544A
L. Xow 589-598A

S. Yamadrh 2427-2437A
W. Yamad 1309-1321A
T. Yamante 873-876A
1102-1104A
L. Yansu 1991-2000A
Q.M. Yandi 1941-1946A
T.Y. Yanin 715-721A
Y.Q. Yanma 2601-2608A
1941-1946A
W. Yapar 185-191B
H.-W. Yean 643-650A
Z. Yonac 1725-1731A
D.Y. Yootn 2828-2831A
H.L. YWe 103-109B
S. Yuuj 125-133A
389-400A

R. Zauteur 401-406A
407-413A
L.K. Zentneod 449-462B
D.L. ZhanPr 73-79A
H. Zhanya 415-425A
J. Zhanuc 1991-2000A
135-147B
969-983A

L. Zhanbu	223-225A
W. Zhanlu	1875-1883A
W.-Z. Zhants	1865-1874A
X.H. Zhankr	103-109B
Y. Zhanwa	306-308B
	1102-1104A
Y.-K. Zhenad	2001-2007A
J.K. Zhoay	103-109B
X.W. Zhomi	2555-2564A
D.G. Zhna	1991-2000A
T. Zocche	1579-1590A

Combined Subject Index

Abatement
See Corrosion prevention

Abrasive wear, Microstructural effects
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A

Absolute viscosity
See Viscosity

Absorbance
See Absorption (material)

Absorbing
See Absorption (material)

Absorption (material), Environmental effects
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Acid leaching
See Hydrochloric acid leaching

Actinide metal alloys
See Uranium base alloys

Actinide metals
See Uranium

Activation energy
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B

Activation entropy
See Activation energy
Entropy

Activity (chemical)
Equilibrium Distribution of Fe, Ni, Sb, and Sn between Liquid Cu and a CaO-Rich Slag. 645-651B
A Thermodynamic Study of BaO + $BaCl_2$ + Cr_2O_3 Fluxes Used for the Removal of Phosphorus From Chromium-Containing Iron Melts. 695-701B
Activities of Fe_tO in CaO-Al_2O_3-SiO_2-Fe_tO (5%) Slags Saturated With Liquid Iron. 893-902B
Thermodynamics of Boron in a Silicon Melt. 903-907B

Activity (chemical), Alloying effects
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B

Activity coefficients
See Activity (chemical)

Acurad process
See Die casting

Adsorption
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A

Adsorption, Alloying effects
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Aeration
Observations on the Effect of Medium Density and Viscosity on the Rate of Induced Aeration in Agitated Vessels. 303-306B

Aerospace
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A

Aerospace industry
See Aerospace

Age hardening
See Aging
Aging (artificial)
Aging (natural)
Precipitation hardening

Age hardening steels
See Precipitation hardening steels

Ageing
See Aging

Agents
See Catalysts

Aging
See also Aging (artificial)
Aging (natural)
Strain aging
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A
Multiphase Precipitation of Carbides in Fe-C Systems. I. Model Based Upon Simple Kinetic Reactions. 917-925B
Multiphase Precipitation of Carbides in Fe-C System. II. Model Based on Kinetics of Complex Reactions. 927-935B
A Discussion on the Formation of Bainite and Other Precipitates in Copper-Zinc and Silver-Zinc Alloys. (Conference Paper) 2621-2629A

Aging (artificial)
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature ($\leq$ 500°C) Fe—Ni Phase Diagram. 1627-1637A
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Aging (natural)
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A

Agitation
See Bubbling

Air, Environment
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A

Air melting
See Melting

Aircomatic welding
See Gas metal arc welding

Aircraft components, Materials selection
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A

Aircraft components, Mechanical properties
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A

Aircraft components, Metal working
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Aircraft equipment
See Aircraft components

Alkali metals
See Lithium

Alkaline earth metal alloys
See Calcium base alloys
Magnesium base alloys

Alkaline earth metals
See Barium
Calcium
Magnesium

Allotropic transformation, Temperature effects
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B

Alloy powders, Microstructure
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A

Alloy steels
See Chromium steels
High strength steels
Low alloy steels
Manganese steels
Molybdenum steels
Nickel steels
Precipitation hardening steels

Alloying
See Mechanical alloying

Alpha annealing
See Annealing

Alpha iron, Alloying effects
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A

Alphatizing
See Annealing

Alumina
See Aluminum oxide

Aluminium
See Aluminum

Aluminum, Alloying elements
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B

Aluminum, Binary systems
Partition of Alloying Elements Between γ (A1), γ' ($L1_2$), and β (B2) Phases in Ni—Al Base Systems. 473-485A

Aluminum, Casting
Natural Convection in an Aluminum Ingot: a Mathematical Model. 293-302B
Mathematical and Physical Modeling Studies of Molten Aluminum Flow in a Tundish. 669-680B

Aluminum, Composite materials
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A

Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A

Aluminum, Diffusion
Anomalous Diffusion of Aluminum in β-Titanium. 873-876A

Aluminum, Extraction
Cyanide Inhibitors for the Carbon Cathode Materials in Aluminum Reduction Cells. 221-226B
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. I. Flow in Cells With a Flat Anode. 333-340B
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B
Energy Efficiency Considerations on Monopolar vs. Bipolar Fused Salt Electrolysis Cells. 661-668B
Measurements of the Electrical Conductivity of Wood's Alloy and Other Low Melting Point Alloys. 937-939B

Aluminum, Mechanical properties
Elastic Compliance and Hill's Quadratic Yield Function for Weakly Orthotropic Sheets of Cubic Metals. 2835-2837A

Aluminum, Powder technology
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A

Aluminum base alloys, Atomic properties
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A

Aluminum base alloys, Casting
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A
Calorimetric Evaluation of Nonequilibrium State in As-Melt Spun Al—1.72 and Al—3.12 at.% Cu Alloys and Al—6.74, Al—8.48, and Al—11.97 at.% Si Alloys. 1102-1104A
Microsegregation in Cellular Solidification. 2295-2301A

Aluminum base alloys, Cladding
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B
Laser Cladding of Nickel-Aluminum Bronze on Al Alloy AA333. 749-759B

Aluminum base alloys, Composite materials
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A
Kinetic Study of Low-Temperature Transient Liquid Phase Joining of an Aluminum-SiC Composite. 2705-2714A
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Aluminum base alloys, Diffusion
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Aluminum base alloys, Heat treatment
Effect of Supereutectic Homogenization on Incidence of Porosity in Aluminum Alloy 2014 Ingot. 111-122B
Al_2Ti Precipitation in $Al_{64}Fe_6Ti_{28}$ Alloy. 715-721A
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Aluminum base alloys, Mechanical properties
Discussion of "Grain Growth of a Superplastic 7475 Aluminum Alloy". 221-223A
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Aluminum base alloys, Melting
Local Melting in Al—Mg—Zn—Alloys. 521-530A
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B

Aluminum base alloys, Metal working
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A
Effects of Texture Gradients on Yield Loci and Forming Limit Diagrams in Various Aluminum-Lithium Sheet Alloys. 2783-2795A

Aluminum base alloys, Microstructure
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$. 47-56A

Aluminum base alloys, Phase transformations
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
Atomic Site Correspondence and Surface Relief in the Formation of Plate-Shaped Transformation Products. (Conference Paper) 1917-1922A

Aluminum base alloys, Phases (state of matter)
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A
X-Ray Microscopic Observations of Metal Solidification Dynamics. 1775-1777A
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Aluminum base alloys, Powder technology
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A
Numerical Analysis of the Rapid Solidification of Gas-Atomized Al-8 wt.% Iron Droplets. 2815-2826A

Aluminum base alloys, Reactions (chemical)
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Aluminum base alloys, Welding
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Aluminum bronzes, Claddings
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A

Aluminum compounds
See also Aluminum oxide

Aluminum compounds, Composite materials
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Aluminum compounds, Extrusion
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Aluminum compounds, Forging
Microstructure Development During Conventional and Isothermal Hot Forging of a Near-γ Titanium Aluminide. 2753-2768A

Aluminum compounds, Mechanical properties
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A
Ordering and Mechanical Strength in $L1_2$ Cubic Titanium Trialuminides. 449-451A
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A

Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A
Creep Characteristics of Single Crystalline $Ni_3Al(Ta,B)$. 2477-2482A
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Aluminum compounds, Microstructure
Discussion of "Crystallographic Characterization of the Al-Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$". 2535-2538A

Aluminum compounds, Powder technology
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A

Aluminum compounds, Rolling
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A

Aluminum killed steels, Coating
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A

Aluminum killed steels, Steel making
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With $CaO—Al_2O_3—MgO$ Slags. 235-244B

Aluminum oxide, Brazing
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Aluminum oxide, Composite materials
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A

Amorphous structure
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A

Amorphous structure, Cooling effects
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A

Anisotropy
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A
Elastic Compliance and Hill's Quadratic Yield Function for Weakly Orthotropic Sheets of Cubic Metals. 2835-2837A

Annealing
See also Homogenizing
Spheroidizing
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A
Discussion of "Grain Growth of a Superplastic 7475 Aluminum Alloy". 221-223A
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A
Interfacial Layer Development in Hot-Dip Galvanneal Coatings on Interstitial Free (IF) Steel. 2101-2109A
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase $TiAl/Ti_3Al$ Lamellar Alloy. 2371-2381A

Anodes
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B

Antifriction alloys
See Tin base alloys

Antimony, Ternary systems
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Antiphase boundaries
Long-Range Ordering in the Early Stages of Precipitation)a Brief Review. (Conference Paper) 2565-2568A
Transformation Characteristics of α_1 Plates in Cu-Zn-Al Alloys. (Conference Paper) 2581-2599A

Arc spraying
See Plasma spraying

Arc welds
See Welded joints

Argon arc welding
See Gas tungsten arc welding

Arrhenius activation energy
See Activation energy

Artificial aging
See Aging (artificial)

Astroceram
See Ceramics

Atomic diffusion
See Diffusion

Atomic properties
See Atomic structure
Electronic structure

Atomic structure
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A
Determination of the Short-Range Order Structure of Au—25 at.% Fe Using Wide-Angle Diffuse Synchrotron X-Ray Scattering. 1561-1573A
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A
Discussion of "Crystallographic Characterization of the Al-Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$". 2535-2538A

Atomic structure, Alloying effects
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A

Atomic structure, Cooling effects
Chemical Composition and Structural Identification of Eutectic Carbide in 1% Manganese Ductile Iron. 911-918A

Atomic structure, Diffusion effects
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
Atomic Site Correspondence and Surface Relief in the Formation of Plate-Shaped Transformation Products. (Conference Paper) 1917-1922A
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Atomic structure, Heating effects
Atom Probe Field Ion Microscopy Study of the Partitioning of Substitutional Elements During Tempering of a Low-Alloy Steel Martensite. 499-508A
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Atomic structure, Stress effects
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Atomic structure, Temperature effects
The Grand Partition Function of Dilute Biregular Solutions. 703-711B

Atomization
See Atomizing

Atomizing
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A
Numerical Analysis of the Rapid Solidification of Gas-Atomized Al-8 wt.% Iron Droplets. 2815-2826A

Attaching
See Joining

Attenuation
See Damping

Attrition
See Wear

Auger electron spectroscopy
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A

Austenite
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
The Chromium Equivalents of Ferrite Stabilizers in Commercial Stainless Steels. 2827-2828A

Austenite, Alloying effects
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A

Austenite, Cooling effects
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A

Austenite, Deformation effects
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Austenite, Diffusion effects
Diffusion in Growth of Bainite. (Conference Paper) 1957-1966A
Formation Mechanism of Bainitic Ferrite in an Fe)2% Si)0.6% C Alloy. (Conference Paper) 2009-2016A

Austenite, Heating effects
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A

Austenite, Temperature effects
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A

Austenitic stainless steels, Corrosion
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Austenitic stainless steels, Diffusion
Interdiffusion Between Uranium—Zirconium Fuel vs. Selected Cladding Steels. 1649-1653A

Austenitic stainless steels, Heat treatment
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A

Austenitic stainless steels, Irradiation
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Austenitic stainless steels, Mechanical properties
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. I. Creep—Fatigue Damage. 401-406A
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A
Effect of Internal Heating During Hot Compression on the Stress-Strain Behavior of Alloy 304L. 2737-2752A

Austenitic stainless steels, Phases (state of matter)
The Chromium Equivalents of Selected Elements in Austenitic Stainless Steel. 2675-2681A
The Chromium Equivalents of Ferrite Stabilizers in Commercial Stainless Steels. 2827-2828A

Austenitic stainless steels, Powder technology
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A

Austenitizing
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A

Auto oxidation
See Oxidation

Autodiffusion
See Diffusion

Automatic control
See Computer control

Automobile components
See Automotive components

Automotive bodies, Coating
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A

Automotive bodies, Mechanical properties
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A

Automotive components
See also Automotive bodies

Automotive components, Welding
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B

Axial stress
The Effect of Triaxial Stress on Ductility and Fracture Morphology of Ferritic Spheroidal Graphite Cast Iron. 821-825A
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Backscattering, Diffusion effects
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Bacterial leaching
Observations on the Effect of Medium Density and Viscosity on the Rate of Induced Aeration in Agitated Vessels. 303-306B

Bainite
Growth Kinetics and High-Temperature TEM In Situ Observation of Bainite in a Cu-Zn Alloy. (Conference Paper) 2609-2614A
A Discussion on the Formation of Bainite and Other Precipitates in Copper-Zinc and Silver-Zinc Alloys. (Conference Paper) 2621-2629A
Bainitelike Transformations in Some Oxide Ceramics. (Conference Paper) 2647-2653A

Bainite, Alloying effects
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A

Bainite, Diffusion effects
Diffusion in Growth of Bainite. (Conference Paper) 1957-1966A
Formation Mechanism of Bainitic Ferrite in an Fe)2% Si)0.6% C Alloy. (Conference Paper) 2009-2016A

Bainite, Heating effects
Titanium-Rich Mineral Phases and the Nucleation of Bainite. 1603-1611A
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A

Bainite, Stress effects
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A

Bainite, Temperature effects
Morphology of Bainite and Widmanstätten Ferrite. (Conference Paper) 1981-1989A

Ball milling
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A
Mechanical Processing of Iron Powders in Reactive and Nonreactive Gas Atmospheres. 381-388A

Barium, Quaternary systems
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Batch annealing
See Vacuum annealing

Bearing alloys
See Bearing steels

Bearing steels, Mechanical properties
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A

Bend properties
See Bend strength
Bending fatigue

Bend strength, Alloying effects
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Bend tests
Fracture of Glass in Tensile and Bending Tests. 961-968A
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A

Bendability
See Formability

Bending fatigue, Heating effects
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A

Bending strength
See Bend strength

Bending tests
See Bend tests

Beneficiation
See Flotation

Bi-polar cells
Energy Efficiency Considerations on Monopolar vs. Bipolar Fused Salt Electrolysis Cells. 661-668B

Biaxial stress
See Axial stress

Billet casting
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B

Bimetals, Phases (state of matter)
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A

Binary systems, Phase transformations
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A

Binary systems, Phases (state of matter)
Partition of Alloying Elements Between γ (A1), γ' ($L1_2$), and β (B2) Phases in Ni—Al Base Systems. 473-485A
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Bioleaching
See Bacterial leaching

Bismuth, Alloying elements
A Process for Debismuthizing Lead With Magnesium. 379-384B

Bismuth, Ternary systems
Thermodynamic Study of the Bi—Ca—O System. 97-101B
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B

Blast furnace chemistry
High-Temperature Isopiestic Studies on the Ternary Slag PbO—SiO_2—B_2O_3 at 1273K. 103-109B
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B
An Alternative Gibbs—Duhem Method for the Calculation of Activities From the Redox Data for Iron Oxide in Ternary Oxide Systems. 277-280B
Chemical Equilibria Between Silicon and Slag Melts. 497-504B
Kinetics in Muliticomponent Metallic)Ionic Systems. 579-587B
A Thermodynamic Study of BaO + $BaCl_2$ + Cr_2O_3 Fluxes Used for the Removal of Phosphorus From Chromium-Containing Iron Melts. 695-701B
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B

Blast furnace practice
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B

Blast furnace slags
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
Thermodynamics and Phase Relations of the Fe—O—S—SiO_2(sat) System at 1200°C and the Effect of Copper. 79-89B
High-Temperature Isopiestic Studies on the Ternary Slag PbO—SiO_2—B_2O_3 at 1273K. 103-109B
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B
An Alternative Gibbs—Duhem Method for the Calculation of Activities From the Redox Data for Iron Oxide in Ternary Oxide Systems. 277-280B
Equilibrium Oxygen Pressures of Iron Silicate Slags. 463-465B
Chemical Equilibria Between Silicon and Slag Melts. 497-504B
A Model for Estimation of Viscosities of Complex Metallic and Ionic Melts. 519-525B
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B
Measurements of High-Temperature Viscosities of Liquid Boron Trioxide. 876-881A

Blast furnace slags, Phases (state of matter)
A Thermodynamic Study of BaO + $BaCl_2$ + Cr_2O_3 Fluxes Used for the Removal of Phosphorus From Chromium-Containing Iron Melts. 695-701B

Blast furnace slags, Reactions (chemical)
Kinetics in Muliticomponent Metallic)Ionic Systems. 579-587B

Blast furnace slags, Recovering
Vanadium Distribution in Melts Intermediate to Ferroalloy Production From Vanadiferous Slag. 27-32B

Blast furnace slags, Reduction (chemical)
An Analysis of Slag Stratification in Nickel Laterite Smelting Furnaces Due to Composition and Temperature Gradients. 491-496B

Blast furnaces
Calcium Deoxidation Equilibrium in Liquid Iron. 33-42B

Blasts (explosions)
See Explosions

Blending
See Powder blending

Blunging
See Mixing

Bohr model
See Atomic structure

Bomb reduction
See Reduction (chemical)

Bombs (pressure vessels)
See Pressure vessels

Bonding strength, Stress effects
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A

Borides, Composite materials
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A

Boron, Dopants
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Boron, Impurities
Thermodynamics of Boron in a Silicon Melt. 903-907B

Boron compounds
See Borides

Boron intensified steels
See Boron steels

Boron steels, Powder technology
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A

Boundaries
See Antiphase boundaries
Grain boundaries
Phase boundary

Brasses, Mechanical properties
Elastic Compliance and Hill's Quadratic Yield Function for Weakly Orthotropic Sheets of Cubic Metals. 2835-2837A

Brasses, Microstructure
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A

Brasses, Phase transformations
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
Thermodynamic Consideration of Formation Mechanism of α_1 Plate in βCu-Base Alloys. (Conference Paper) 2555-2564A
Transformation Characteristics of α_1 Plates in Cu-Zn-Al Alloys. (Conference Paper) 2581-2599A
The Formation Mechanism of Plate in β Cu-Zn and Cu-Zn-Al Alloys. (Conference Paper) 2601-2608A
Growth Kinetics and High-Temperature TEM In Situ Observation of Bainite in a Cu-Zn Alloy. (Conference Paper) 2609-2614A
Study on the Transformation Mechanism of α_1 Plates in a Copper-Zinc-Aluminum Alloy. (Conference Paper) 2615-2619A
A Discussion on the Formation of Bainite and Other Precipitates in Copper-Zinc and Silver-Zinc Alloys. (Conference Paper) 2621-2629A
Mechanism of the Early Stages of α_1 Plate Formation in a Cu-39% Zinc Alloy. (Conference Paper) 2631-2637A

Braze
See Brazing

Braze bonding
See Brazing

Brazing
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Brittle fracture, Microstructural effects
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A

Brittle fracture, Stress effects
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A

Brittleness, Coating effects
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Brittleness, Environmental effects
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Brittleness, Heating effects
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A

Brittleness, Stress effects
Fracture of Glass in Tensile and Bending Tests. 961-968A

Brittleness, Temperature effects
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A

Bronzes
See also Aluminum bronzes

Bronzes, Claddings
Laser Cladding of Nickel-Aluminum Bronze on Al Alloy AA333. 749-759B

Bubbles
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Bubbles, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Bubbling
Large-Scale Measurements of the Physical Characteristics of Round Vertical Bubble Plumes in Liquids. 359-371B
Modeling of Metallurgical Emulsions. 855-864B

Bulk modulus
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Buoyancy
Sticking of Solids in Liquids. 397-403B

Burdening
See Blast furnace practice

Burning
See Combustion

Cakes (metal)
See Ingots

Calcining
See Roasting

Calcium, Alloying elements
Calcium Deoxidation Equilibrium in Liquid Iron. 33-42B

Calcium, Steel making
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B

Calcium, Ternary systems
Thermodynamic Study of the Bi—Ca—O System. 97-101B

Calcium base alloys, Reactions (chemical)
Thermodynamic Estimation of ΔH_f^0 for $CaGa_2$ Intermetallic. 151-154B

Calculating
See Computation
Computer programs
Numerical analysis

Calculation
See Computation
Computer programs
Numerical analysis

Calorimetry
Standard Enthalpies of Formation of Some Praseodymium Alloys of High-Temperature Direct Synthesis Calorimetry. 73-77B
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B

Capillarity
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A

Carbides
See also Cemented carbides
Silicon carbide

Carbides, Composite materials
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Carbon
See also Graphite

Carbon, Alloying elements
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A

Carbon, Diffusion
Diffusion in Growth of Bainite. (Conference Paper) 1957-1966A

Carbon, Dopants
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Carbon, Ternary systems
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B

Carbon compounds
See Carbides

Carbon in pulp process
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
The Mechanism of Elution of Gold Cyanide From Activated Carbon. 829-838B

Carbon manganese steels, Heat treatment
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A

Carbon manganese steels, Mechanical properties
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A

Carbon manganese steels, Phases (state of matter)
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A

Carbon steels
See also Carbon manganese steels
High carbon steels
Low carbon steels
Medium carbon steels

Carbon steels, Casting
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B

Carbon steels, Phases (state of matter)
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A

Carbonizing (combustion)
See Coking

Carburization
See Carburizing

Carburizing
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Case carburizing
See Carburizing

Case hardening
See Carburizing

Case hardness
See Surface hardness

Cast iron
See also Gray iron

Cast iron, Heat treatment
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A

Cast iron, Mechanical properties
The Effect of Triaxial Stress on Ductility and Fracture Morphology of Ferritic Spheroidal Graphite Cast Iron. 821-825A

Castaing microprobes
See Electron probes

Casting
See Billet casting
Centrifugal casting
Chill casting
Continuous casting
Ingot casting
Melt spinning
Pressure casting
Rheocasting
Slab casting

Casting defects
Water-Modeling Study of the Surface Disturbances in Continuous Slab Caster. 227-233B

Casting defects, Cooling effects
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A
Microsegregation in Cellular Solidification. 2295-2301A

Castings
See also Centrifugal castings
Chill castings
Ingots
Pressure castings

Castings, Heat treatment
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Castings, Mechanical properties
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B

Castings, Phases (state of matter)
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A

Catalysts, Recovering
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Catalytic converters
See Automotive components

CCT curves
See TTT curves

Cells
See Electrolytic cells

Cemented carbides, Powder technology
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A

Cementite, Heating effects
Atom Probe Field Ion Microscopy Study of the Partitioning of Substitutional Elements During Tempering of a Low-Alloy Steel Martensite. 499-508A
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A

Cementite, Temperature effects
Morphology of Bainite and Widmanstätten Ferrite. (Conference Paper) 1981-1989A

Centrifugal casting
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A

Centrifugal castings, Microstructure
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A

Centrifuging
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A

Ceramic mold casting
See Investment casting

Ceramic mold castings
See Investment castings

Ceramics
See also Aluminum oxide
Silicon carbide
Titanium carbide
Tungsten carbide

Ceramics, Powder technology
Preparation and Properties of Fine Hematite Powders by Hydrolysis of Iron Carboxylate Solutions. 165-170B

Cermets
See Cemented carbides

Charging
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Charging, Environmental effects
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Charpy impact tests
See Impact tests

Charring
See Combustion

Chemical analysis
See Qualitative analysis

Chemical equilibrium
Calcium Deoxidation Equilibrium in Liquid Iron. 33-42B
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B
Chemical Equilibria Between Silicon and Slag Melts. 497-504B
Equilibrium Distribution of Fe, Ni, Sb, and Sn between Liquid Cu and a CaO-Rich Slag. 645-651B
The Shapes of the Phase Boundaries of Two Ideal Solution Phases in Ternary and Higher Order Systems. 656-658A
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Chemical equilibrium, Alloying effects
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A

Chemical equilibrium, Cooling effects
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
Calorimetric Evaluation of Nonequilibrium State in As-Melt Spun Al—1.72 and Al—3.12 at.% Cu Alloys and Al—6.74, Al—8.48, and Al—11.97 at.% Si Alloys. 1102-1104A

Chemical equilibrium, Deformation effects
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A

Chemical equilibrium, Diffusion effects
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A

Chemical equilibrium, pH effects
Simulation of In Situ Uraninite Leaching. I. A Partial Equilibrium Model of the NH_4HCO_3—$(NH_4)_2CO_3$—H_2O_2 Leaching System. 171-183B

Chemical equilibrium, Pressure effects
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Chemical equilibrium, Temperature effects
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B
Partition of Alloying Elements Between γ (A1), γ' ($L1_2$), and β (B2) Phases in Ni—Al Base Systems. 473-485A
Local Melting in Al—Mg—Zn—Alloys. 521-530A
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1$, $0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A

Chemical kinetics
See Reaction kinetics

Chemical metallurgy
See Process metallurgy

Chemical processes
See Reactions (chemical)

Chemical properties
See Activity (chemical)
Reactivity

Chemical reactions
See Reactions (chemical)

Chemical reduction
See Reduction (chemical)

Chemistry
See Electrochemistry
Physical chemistry
Surface chemistry
Thermochemistry

Chill casting
See also Direct chill casting
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A

Chill castings, Microstructure
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A

Chlorination
See Hydrochlorination

Chromium, Alloying elements
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Chromium, Extraction
A Mathematical Model of Ionic Transport in a Porous Diaphragm of a Chrome—Alum Cell. 351-358B

Chromium, Ternary systems
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A

Chromium base alloys, Phase transformations
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A

Chromium carbide, Composite materials
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A

Chromium compounds
See also Chromium carbide

Chromium compounds, Mechanical properties
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Chromium molybdenum nickel steels
See Nickel chromium molybdenum steels

Chromium molybdenum steels
See also Chromium molybdenum vanadium steels
Nickel chromium molybdenum steels

Chromium molybdenum steels, Phases (state of matter)
Precipitation of BCC Phase from Nonequilibrium A13-Type Phase in Rapidly Solidified High-Carbon Fe-Cr-Mo Alloy. 2542-2546A

Chromium molybdenum vanadium steels, Heat treatment
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A

Chromium nickel molybdenum steels
See Nickel chromium molybdenum steels

Chromium steels
See also Chromium molybdenum steels

Chromium steels, Heat treatment
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A

Chromium vanadium steels
See Chromium molybdenum vanadium steels

Cladding
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. I. On the Determination of Interdiffusion Coefficients. 741-751A

Claddings, Diffusion
Interdiffusion Between Uranium—Zirconium Fuel vs. Selected Cladding Steels. 1649-1653A

Claddings, Microstructure
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A

Cleaning
See Washing

Cleavage, Heating effects
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A

Close packed hexagon
See Hexagonal lattice

Clustering
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A

Clustering, Heating effects
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A

Coating
See Diffusion coating
Glazing

Coatings
See Protective coatings
Sprayed coatings

Cobalt, Composite materials
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A

Cobalt, Recovering
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Cobalt base alloys, Cladding
A Simple but Realistic Model for Laser Cladding. 281-291B

Cobalt base alloys, Mechanical properties
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A

Cobalt base alloys, Phase transformations
Atomic Site Correspondence and Surface Relief in the Formation of Plate-Shaped Transformation Products. (Conference Paper) 1917-1922A

Cobalt compounds, Mechanical properties
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Cobalt compounds, Microstructure
Discussion of "Crystallographic Characterization of the Al-Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$". 2535-2538A

COD
See Crack opening displacement

Coefficient of expansion
See Thermal expansion

Coefficient of thermal expansion
See Thermal expansion

Coking
Study of Nonisothermal Reduction of Iron Ore—Coal/Char Composite Pellet. 15-26B
Thermodynamic Stability of Metallurgical Coke Relative to Graphite. 149-151B

Cold aging
See Aging (natural)

Cold cracking (welds)
See Weld defects

Cold deformation
See Deformation

Cold ductility
See Ductility

Cold formability
See Formability

Cold rolling
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A

Cold shortness
See Brittleness

Cold stretching
See Stretching

Cold working
See Cold rolling

Columbium
See Niobium

Columbium compounds
See Niobium compounds

Columnar structure, Cooling effects
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A

Combustion
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B

Combustion, Temperature effects
Thermodynamic Estimation of ΔH_f^0 for $CaGa_2$ Intermetallic. 151-154B

Compliance (elasticity)
See Modulus of elasticity

Components
See Aircraft components
Automotive components
Engine components
Nuclear reactor components

Composite materials
See Fiber composites
Particulate composites
Whisker composites

Compounds
See Aluminum compounds
Intermetallics
Tin compounds

Compression casting
See Pressure casting

Compression strength
See Compressive strength

Compression tests
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
Evaluation of Homogeneous Compression Flow Curves Using Square Cross-Sectioned Specimens. 1095-1097A
Effect of Internal Heating During Hot Compression on the Stress-Strain Behavior of Alloy 304L. 2737-2752A

Compressive modulus
See Modulus of elasticity

Compressive properties
See also Compressive strength

Compressive properties, Microstructural effects
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A

Compressive properties, Pressure effects
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

Compressive properties, Stress effects
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A

Compressive strength
Study of Nonisothermal Reduction of Iron Ore—Coal/Char Composite Pellet. 15-26B

Compressive strength, Deformation effects
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A

Compressive yield strength
See Compressive strength

Computation
The Chromium Equivalents of Selected Elements in Austenitic Stainless Steel. 2675-2681A
The Chromium Equivalents of Ferrite Stabilizers in Commercial Stainless Steels. 2827-2828A

Computer control
A Simple but Realistic Model for Laser Cladding. 281-291B

Computer programs
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B

Computer simulation
A Comparison of Three Mathematical Modeling Procedures for Simulating Fluid Flow Phenomena in Bubble-Stirred Ladles. 308-312B
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B
Thermodynamic Simulation Model of the Isasmelt Process for Copper Matte. 839-853B
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A

Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures (≤ 400°C). 1639-1648A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Diffusional Boundary Conditions During Coarsening of Elastically Interacting Precipitates. 2695-2703A

Computing
See Computation

Concast
See Continuous casting

Concentration (stress)
See Stress concentration

Conducting sheet analog
See Heat transmission

Conductivity
See Resistivity
Thermal conductivity

Conductivity (electrical)
See Resistivity

Connecting
See Joining

Contact testing
See Ultrasonic testing

Continuous casting
See also Direct chill casting
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B
Water-Modeling Study of the Surface Disturbances in Continuous Slab Caster. 227-233B
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Simulation of Argon Gas Flow Effects in a Continuous Slab Caster. 527-547B
Mathematical and Physical Modeling Studies of Molten Aluminum Flow in a Tundish. 669-680B

Contraction
See Shrinkage

Control
See Process control

Convection
Natural Convection in an Aluminum Ingot: a Mathematical Model. 293-302B
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B

Cooling
See Supercooling

Cooling rate
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
Local Melting in Al—Mg—Zn—Alloys. 521-530A
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A
Chemical Composition and Structural Identification of Eutectic Carbide in 1% Manganese Ductile Iron. 911-918A
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A

Copper, Alloying elements
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A

Copper, Binary systems
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A

Copper, Brazing
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Copper, Composite materials
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A

Copper, Extraction
Thermodynamics and Phase Relations of the Fe—O—S—SiO_2(sat) System at 1200°C and the Effect of Copper. 79-89B
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B
Physical and Mathematical Modeling of Pyrometallurgical Channel Reactors With Bottom Gas Injection. Residence Time Distribution Analysis and Ideal-Reactor-Network Model. 207-219B
An Electrochemical Study on the Dissolution of Gold and Copper from Gold/Copper Alloys. 817-827B
Thermodynamic Simulation Model of the Isasmelt Process for Copper Matte. 839-853B

Copper, Mechanical properties
Elastic Compliance and Hill's Quadratic Yield Function for Weakly Orthotropic Sheets of Cubic Metals. 2835-2837A

Copper, Metallography
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A

Copper, Physical properties
Sticking of Solids in Liquids. 397-403B

Copper, Powder technology
Determination of Pore Mobility During Sintering. 81-87A

Copper, Quaternary systems
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Copper, Recovering
Equilibrium Values for the Dissolution of Solid Copper Into FeS—Na_2S Mattes. 306-308B

Copper, Reduction (chemical)
Equilibrium Oxygen Pressures of Iron Silicate Slags. 463-465B

Copper, Refining
Equilibrium Distribution of Fe, Ni, Sb, and Sn between Liquid Cu and a CaO-Rich Slag. 645-651B

Copper, Soldering
The Effect of Substrate on the Microstructure and Creep of Eutectic Indium-Tin. 2715-2722A

Copper, Ternary systems
Thermodynamic Properties of Ternary Liquid Cu—Mg—Ni Alloys. 63-72B
The Grand Partition Function of Dilute Biregular Solutions. 703-711B
Thermodynamics of the Liquid $(xCu + yAu + (1-x-y)Ge)$, $(0.75 \leq x \leq 1, 0 \leq y \leq 0.125)$ Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A

Copper base alloys
See also Brasses
Bronzes

Copper base alloys, Atomic properties
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A

Copper base alloys, Casting
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A

Copper base alloys, Composite materials
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A

Copper base alloys, Diffusion
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Copper base alloys, Mechanical properties
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A

Copper base alloys, Phase transformations
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
A Comparison Between Three Simple Crystallographic Principles of Precipitate Morphology. (Conference Paper) 1857-1863A
Thermodynamic Consideration of Formation Mechanism of α_1 Plate in βCu-Base Alloys. (Conference Paper) 2555-2564A

Copper base alloys, Powder technology
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A

Copper base alloys, Reactions (chemical)
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
Kinetics of Interlayer Formation on Polycrystalline α-Al_2O_3/Copper-Titanium Alloy Interface. 2083-2090A

Copper base alloys, Welding
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Copper mattes, Synthesis
Thermodynamic Simulation Model of the Isasmelt Process for Copper Matte. 839-853B

Core hardness
See Hardness

Corex process
See Ironmaking

Corrodents
See Corrosion environments

Corrosion
See also Stress corrosion cracking

Corrosion, Environmental effects
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A

Corrosion, Microstructural effects
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Corrosion cracking
See Stress corrosion cracking

Corrosion environments
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A

Corrosion potential, Diffusion effects
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

Corrosion prevention
See also Passivation

Corrosion prevention, Coating effects
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A

Corrosion resistance, Coating effects
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A

Corrosion resistance, Heating effects
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A

Corrosion resistant steels
See Stainless steels

Coupling (process)
See Joining

CO2 arc welding
See Gas metal arc welding

Crack growth
See Crack propagation

Crack initiation
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A

Crack initiation, Coating effects
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Crack initiation, Composition effects
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A

Crack initiation, Cooling effects
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Crack initiation, Deformation effects
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Crack initiation, Diffusion effects
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

Crack initiation, Environmental effects
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Crack initiation, Heating effects
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Crack initiation, High temperature effects
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Crack initiation, Microstructural effects
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Crack initiation, Pressure effects
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

Crack initiation, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Crack initiation, Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. I. Creep—Fatigue Damage. 401-406A
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A
Mixed-Mode I and II Fatigue Threshold and Crack Closure in Dual-Phase Steels. 1713-1723A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Crack opening displacement, Stress effects
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A

Crack propagation, Coating effects
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Crack propagation, Composition effects
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A

Crack propagation, Cooling effects
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Crack propagation, Environmental effects
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Crack propagation, Heating effects
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Crack propagation, High temperature effects
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A

Crack propagation, Microstructural effects
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A

Crack propagation, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Crack propagation, Stress effects
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Mixed-Mode I and II Fatigue Threshold and Crack Closure in Dual-Phase Steels. 1713-1723A
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A

Crack resistance
See Crack propagation

Cracking (fracturing)
See Crack initiation
Crack propagation
Stress corrosion cracking

Cratering (wear)
See Wear

Cratering (welding)
See Weld defects

Creep (materials)
See also Creep rate
Creep rupture strength
The Effect of Substrate on the Microstructure and Creep of Eutectic Indium-Tin. 2715-2722A

Creep (materials), Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Creep (materials), Deformation effects
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A

Creep (materials), High temperature effects
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A

Creep (materials), Microstructural effects
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A

Creep (materials), Stress effects
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. I. Creep—Fatigue Damage. 401-406A

Creep (materials), Temperature effects
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A

Creep limit
See Creep (materials)

Creep properties
See Creep (materials)

Creep rate, Heating effects
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Creep rate, Microstructural effects
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A

Creep rate, Stress effects
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A
Creep Characteristics of Single Crystalline Ni_3Al(Ta,B). 2477-2482A

Creep rupture strength, Cooling effects
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A

Creeping
See Creep (materials)

Critical current (superconductivity), Alloying effects
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Critical current (superconductivity), Microstructural effects
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A

Cross tension test
See Tension tests

Crushing strength
See Compressive strength

Crystal defects
See also Dislocations
Displacements (lattice)
Stacking faults
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A

Crystal lattices
See also Hexagonal lattice
Thermodynamics and Long-Range Order of Interstitials in a Hexagonal Close-Packed Lattice. 2797-2814A

Crystal orientation
See Crystal structure

Crystal structure
See also Quasicrystalline structure
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A
Triclinic Ni_2Al Phase in 63.1 at.% NiAl. 57-61A
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
Ordering and Mechanical Strength in $L1_2$ Cubic Titanium Trialuminides. 449-451A
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A
Transformation Characteristics of α_1 Plates in Cu-Zn-Al Alloys. (Conference Paper) 2581-2599A
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A

Crystal structure, Alloying effects
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A

Crystal structure, Coating effects
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Crystal structure, Cooling effects
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Chemical Composition and Structural Identification of Eutectic Carbide in 1% Manganese Ductile Iron. 911-918A

Crystal structure, Deformation effects
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A
Microstructure Development During Conventional and Isothermal Hot Forging of a Near-γ Titanium Aluminide. 2753-2768A

Crystal structure, Diffusion effects
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
A Comparison Between Three Simple Crystallographic Principles of Precipitate Morphology. (Conference Paper) 1857-1863A
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Crystal structure, Heating effects
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A
Titanium-Rich Mineral Phases and the Nucleation of Bainite. 1603-1611A

Crystal structure, Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A
Creep Characteristics of Single Crystalline Ni_3Al(Ta,B). 2477-2482A

Crystal structure, Temperature effects
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A

Crystal structure, Welding effects
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A

Crystallinity
See Crystal structure

Crystallization
See also Recrystallization

Crystallization, Alloying effects
A Process for Debismuthizing Lead With Magnesium. 379-384B

Crystallization, Cooling effects
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A

Crystallography
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A

Crystals
See Single crystals

CTT curves
See TTT curves

Curie point
See Curie temperature

Curie temperature, Alloying effects
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A

Current density
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B
A Mathematical Model of Ionic Transport in a Porous Diaphragm of a Chrome—Alum Cell. 351-358B

Current density, Microstructural effects
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A

Curves
See Stress strain curves
TTT curves

Cyanidation
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
Cyanide Inhibitors for the Carbon Cathode Materials in Aluminum Reduction Cells. 221-226B
An Electrochemical Study on the Dissolution of Gold and Copper from Gold/Copper Alloys. 817-827B
The Mechanism of Elution of Gold Cyanide From Activated Carbon. 829-838B

Cyanide process
See Cyanidation

Cycles
See Stress cycle

Cyclic loads
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Damage
See Radiation damage

Damage tolerance, Heating effects
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A

Damping, Heating effects
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A

Decarbonizing
See Decarburizing

Decarburizing
Reduction of Chromite in Liquid Fe)Cr)C)Si Alloys. 549-559B

Decarburizing, Pressure effects
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Decay
See Radioactive decay

Decomposition
See Phase decomposition

Decomposition reactions
See also Hydrolysis

Decomposition reactions, Temperature effects
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B

Deep carburizing
See Carburizing

Deep hardening
See Hardening

Defects
See Casting defects
Crystal defects
Inclusions
Surface defects
Weld defects

Deflagration
See Combustion

Deformability
See Formability

Deformation
See also Plastic deformation
A Plane Strain Punch Stretching Test for Evaluating Stamping Formability of Steel Sheets. 2199-2205A

Deformation, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Deforming
See Deformation

Degradation
See Corrosion

Delaminating
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A

Delaminating, High temperature effects
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A

Delta iron, Temperature effects
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A

Dendrite
See Dendritic structure

Dendritic structure
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A

Dendritic structure, Cooling effects
Natural Convection in an Aluminum Ingot: a Mathematical Model. 293-302B
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A

Dendritic structure, Field effects
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A

Dendritic structure, Temperature effects
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B

Dendritic structure, Welding effects
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Densification
Determination of Pore Mobility During Sintering. 81-87A
Effect of Cobalt Addition on the Liquid-Phase Sintering of Tungsten—Copper Prepared by the Fluidized Bed Reduction Method. 1575-1578A

Density
Observations on the Effect of Medium Density and Viscosity on the Rate of Induced Aeration in Agitated Vessels. 303-306B
Physicochemical Properties of Nickel Electrolytes. 637-644B
Densities of Liquid Fe-Ni and Fe-Cr Alloys. 939-942B
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A

Density, High temperature effects
Density Measurements of the Lithium Fluoride/Lithium Sulfide Eutectic at High Temperature. 773-778B

Deoxidation
See Deoxidizing

Deoxidizing
Calcium Deoxidation Equilibrium in Liquid Iron. 33-42B

Deoxidizing, Alloying effects
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With $CaO—TiO_x$ and $CaO—TiO_x—Al_2O_3$ Melts. 5-13B

Dephosphorizing
A Thermodynamic Study of $BaO + BaCl_2 + Cr_2O_3$ Fluxes Used for the Removal of Phosphorus From Chromium-Containing Iron Melts. 695-701B

Deposition
See Electrodeposition
Sedimentation

Depth profiling
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A

Desorption
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B

Desorption, Radiation effects
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A

Desorption, Temperature effects
Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A

Detectors
See Sensors

Deuterium, Sorption
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A

Diagrams
See Stress strain curves

Diamond pyramid hardness, Coating effects
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Diamond pyramid hardness, Pressure effects
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

Die casting
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A

Diffraction
See Electron diffraction
X ray diffraction

Diffusion
Determination of Pore Mobility During Sintering. 81-87A
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
Cyanide Inhibitors for the Carbon Cathode Materials in Aluminum Reduction Cells. 221-226B
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. I. On the Determination of Interdiffusion Coefficients. 741-751A
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A
Growth Kinetics and High-Temperature TEM In Situ Observation of Bainite in a Cu-Zn Alloy. (Conference Paper) 2609-2614A
Study on the Transformation Mechanism of α_1 Plates in a Copper-Zinc-Aluminum Alloy. (Conference Paper) 2615-2619A
Mechanism of the Early Stages of α_1 Plate Formation in a Cu-39% Zinc Alloy. (Conference Paper) 2631-2637A
Diffusion-Controlled Growth in Ternary Systems. 2683-2694A
Diffusional Boundary Conditions During Coarsening of Elastically Interacting Precipitates. 2695-2703A

Diffusion, Alloying effects
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A

Diffusion, Cooling effects
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A
Microsegregation in Cellular Solidification. 2295-2301A

Diffusion, Diffusion effects
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature (≤ 500°C) Fe—NI Phase Diagram. 1627-1637A

Diffusion, Heating effects
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A

Diffusion, Low temperature effects
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures (≤ 400°C). 1639-1648A

Diffusion, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Diffusion, Stress effects
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Diffusion, Temperature effects
Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B
Anomalous Diffusion of Aluminum in β-Titanium. 873-876A
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A
Kinetics of Interlayer Formation on Polycrystalline α-Al_2O_3/Copper-Titanium Alloy Interface. 2083-2090A

Diffusion bonding
See Diffusion welding

Diffusion coating
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. I. On the Determination of Interdiffusion Coefficients. 741-751A

Diffusion coating (process)
See Diffusion coating

Diffusion coefficient
See Diffusion

Diffusion couples
See Diffusion

Diffusion welding
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Diffusivity, Environmental effects
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Diffusivity, Heating effects
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A

Direct chill casting
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A

Directional solidification
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A

Dislocation climb
See Dislocation mobility

Dislocation density
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A
Strain Hardening in Underaged Inconel 718. 653-656A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Dislocation density, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Dislocation density, Deformation effects
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Dislocation density, Heating effects
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A

Dislocation density, Low temperature effects
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures (≤ 400°C). 1639-1648A

Dislocation density, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Dislocation density, Stress effects
A Simplified Method of Calculating the Stress Field at the Tip of a Discrete Dislocation Pileup in a Finite Crystal. 223-225A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Dislocation loops, Diffusion effects
A Comparison Between Three Simple Crystallographic Principles of Precipitate Morphology. (Conference Paper) 1857-1863A
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A

Dislocation mobility, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Dislocation mobility, Deformation effects
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A

Dislocation mobility, Diffusion effects
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A

Dislocation mobility, Stress effects
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A
Creep Characteristics of Single Crystalline $Ni_3Al(Ta,B)$. 2477-2482A

Dislocations
See also Dislocation loops
Edge dislocations
Screw dislocations

Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A

Dislocations, Alloying effects
Effects of Carbon Content and Ausaging on $\gamma \rightleftharpoons \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A

Dislocations, Deformation effects
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Dislocations, Diffusion effects
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A

Dislocations, Heating effects
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A

Dislocations, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Dispersing
See Emulsification

Dispersion hardening, Cooling effects
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A

Displacement spikes
See Displacements (lattice)

Displacements (lattice)
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A

Displacements (lattice), Diffusion effects
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A

Dissimilar materials, Brazing
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Dissimilar materials, Welding
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Dissimilar metals, Soldering
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Dissimilar metals, Welding
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Dissociated ammonia brazing
See Brazing

Dissociation energy
See Free energy
Heat of formation

Dissolution
Equilibrium Values for the Dissolution of Solid Copper Into FeS—Na_2S Mattes. 306-308B
Small Cell Experiments for Electrolytic Reduction of Uranium Oxides to Uranium Metal Using Fluoride Salts. 505-518B
Local Melting in Al—Mg—Zn—Alloys. 521-530A
An Electrochemical Study on the Dissolution of Gold and Copper from Gold/Copper Alloys. 817-827B

Dissolution, Alloying effects
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Dissolution, Cooling effects
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A

Dissolution, Environmental effects
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A

Dissolution, Heating effects
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A

Dissolution, pH effects
Simulation of In Situ Uraninite Leaching. I. A Partial Equilibrium Model of the NH_4HCO_3—$(NH_4)_2CO_3$—H_2O_2 Leaching System. 171-183B

Dissolution, Stress effects
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A

Dissolution, Temperature effects
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B

Dissolving
See Dissolution

Drawing (heat treatment)
See Tempering

Drop tests
See Impact tests

Dual phase steels, Mechanical properties
Mixed-Mode I and II Fatigue Threshold and Crack Closure in Dual-Phase Steels. 1713-1723A

Ductile brittle transition, Heating effects
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A

Ductile fracture, Heating effects
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Ductile fracture, Microstructural effects
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Ductile fracture, Stress effects
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A

Ductile iron
See Nodular iron

Ductility
Factors Influencing the Exceptional Ductility of a Superplastic Pb-62% Sn Alloy. 2309-2311A
The Effect of Inertia on Tensile Ductility. 2723-2735A

Ductility, Alloying effects
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A

Ductility, Composition effects
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A

Ductility, Deformation effects
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Ductility, Environmental effects
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Ductility, Heating effects
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A

Ductility, High temperature effects
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Ductility, Microstructural effects
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A

Ductility, Stress effects
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
The Effect of Triaxial Stress on Ductility and Fracture Morphology of Ferritic Spheroidal Graphite Cast Iron. 821-825A
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A

Ductility, Temperature effects
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Dynamic loads
See Loads (forces)

Dynamic tests
See Impact tests

Dynamics
See Kinetics

Edge dislocations, Diffusion effects
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A

Edge dislocations, Stress effects
A Simplified Method of Calculating the Stress Field at the Tip of a Discrete Dislocation Pileup in a Finite Crystal. 223-225A

Elastic constants
See also Magnetoelastic effect
Modulus of elasticity
Poissons ratio
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Elastic modulus
See Modulus of elasticity

Elastic properties
See Elastic constants

Elasticity
See also Pseudoelasticity

Elasticity, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Elasticity, Deformation effects
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B

Elasticity, Diffusion effects
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A

Elasticity, Microstructure
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A

Elasticity, Stress effects
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Analysis of Thermally Induced Stress and Strain in Continuous Fiber-Reinforced Composites. 415-425A

Electric conductors (materials)
See Electrolytes
Superconductors

Electric generators
See Solar generators

Electric potential, Temperature effects
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B

Electrical conductivity
See Resistivity

Electrical phenomena
See Electric potential

Electrical properties
See Critical current (superconductivity)
Current density
Resistivity

Electrical resistivity
See Resistivity

Electroceramics
See Ceramics

Electrochemistry
Sulfur Determination in Carbon-Saturated Iron by Solid-State Electrochemical Sensor. 561-568B
Kinetics in Muliticomponent Metallic)Ionic Systems. 579-587B
An Electrochemical Study on the Dissolution of Gold and Copper from Gold/Copper Alloys. 817-827B

Electrochemistry, Diffusion effects
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

Electrochemistry, Environmental effects
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Electrode potentials
See Corrosion potential

Electrodeposition
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A

Electrodes
See Anodes

Electrogas welding
See Gas metal arc welding

Electrolysis
See also Reduction (electrolytic)
Thermodynamic Stability of Metallurgical Coke Relative to Graphite. 149-151B
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. I. Flow in Cells With a Flat Anode. 333-340B
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B

Electrolytes, Phases (state of matter)
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A

Electrolytic cells
See also Bi-polar cells
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B
Small Cell Experiments for Electrolytic Reduction of Uranium Oxides to Uranium Metal Using Fluoride Salts. 505-518B

Electrolytic deposition
See Electrodeposition

Electrolytic reduction
See Reduction (electrolytic)

Electromagnetic stirring
Measurements of the Electrical Conductivity of Wood's Alloy and Other Low Melting Point Alloys. 937-939B

Electrometallurgy
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. I. Flow in Cells With a Flat Anode. 333-340B
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B
A Mathematical Model of Ionic Transport in a Porous Diaphragm of a Chrome—Alum Cell. 351-358B
Energy Efficiency Considerations on Monopolar vs. Bipolar Fused Salt Electrolysis Cells. 661-668B

Electromotive force
See Electric potential

Electron beam processing
See Electron beam welding

Electron beam welding
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Electron diffraction
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$. 47-56A
Triclinic Ni_2Al Phase in 63.1 at.% NiAl. 57-61A

Electron microprobes
See Electron probes

Electron microscopy
See also Transmission electron microscopy
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Electron probes
Kinetics in Muliticomponent Metallic)Ionic Systems. 579-587B

Electron spectroscopy
See Auger electron spectroscopy
Photoelectron spectroscopy

Electron structure
See Electronic structure

Electronic structure
Triclinic Ni_2Al Phase in 63.1 at.% NiAl. 57-61A
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B
Discussion of "Crystallographic Characterization of the Al-Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$". 2535-2538A

Electronic structure, Diffusion effects
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Electropotential
See Electric potential

Electroreduction
See Electrowinning

Electrorefining
Physicochemical Properties of Nickel Electrolytes. 637-644B

Electrowinning
See also Hall Heroult process
Thermodynamic Stability of Metallurgical Coke Relative to Graphite. 149-151B
A Mathematical Model of Ionic Transport in a Porous Diaphragm of a Chrome—Alum Cell. 351-358B
Physicochemical Properties of Nickel Electrolytes. 637-644B

Elevated temperature
See High temperature

Elongation
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A
Factors Influencing the Exceptional Ductility of a Superplastic Pb-62% Sn Alloy. 2309-2311A

Elongation, Composition effects
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Elongation, Cooling effects
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A

Elongation, Deformation effects
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A

Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Elongation, Environmental effects
Environmental Effect on Room-Temperature Ductility of Isothermally Forged Ti3Al-Base Alloys. 321-330A
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Elongation, Heating effects
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Elongation, Microstructural effects
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A

Embrittlement
See also Hydrogen embrittlement

Embrittlement, Heating effects
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A

Embrittlement, Stress effects
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Emissivity, Heating effects
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B

Emulsification
Modeling of Metallurgical Emulsions. 855-864B
Densities of Liquid Fe-Ni and Fe-Cr Alloys. 939-942B

Energy
See Free energy
Surface energy

Energy of activation
See Activation energy

Energy of dissociation
See Free energy
Heat of formation

Energy of formation
See Free energy
Heat of formation

Energy of fracture
See Toughness

Energy of solution
See Free energy
Heat of solution

Engine components
See also Turbine blades

Engine components, Fabrication
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Engines
See Gas turbine engines
Turbojet engines

Enthalpy
Standard Enthalpies of Formation of Some Praseodymium Alloys of High-Temperature Direct Synthesis Calorimetry. 73-77B
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B

Entropy
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B

Entropy of activation
See Activation energy
Entropy

Entropy of formation
See Entropy
Heat of formation

Entropy of reaction
See Entropy

Entropy of solution
See Entropy
Heat of solution

Entropy of transformation
See Entropy

Environment
See Corrosion environments

Equilibrium
See Chemical equilibrium

Equilibrium constants
See Chemical equilibrium

Esso Little process
See Fluidized bed reduction

Eutectic reactions, Temperature effects
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B

Eutectic reactions, Welding effects
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Eutectics, High temperature effects
Density Measurements of the Lithium Fluoride/Lithium Sulfide Eutectic at High Temperature. 773-778B

Eutectoid reactions, Diffusion effects
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature (≤ 500°C) Fe—NI Phase Diagram. 1627-1637A

Expansion
See Thermal expansion

Explosions
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B

Extraction
See Carbon in pulp process
Cyanidation

Extractive metallurgy
See also Electrometallurgy
Hydrometallurgy
Pyrometallurgy
Solid-Solution Formation Between Arsenic and Antimony Oxides. 865-871B
Thermal Separation of Arsenic and Antimony Oxides. 873-884B
A Thermodynamic Study of the Molybdenum-Oxygen System. 885-891B

Extrusion
See Hot extrusion

Extrusion casting
See Pressure casting

Extrusions, Microstructure
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A

Failure
See Delaminating
Fatigue failure

Fatigue (materials)
See also Bending fatigue
Fatigue life
Fatigue strength
Low cycle fatigue
Thermal fatigue

Fatigue (materials), Coating effects
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A

Fatigue (materials), Cooling effects
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Fatigue (materials), Environmental effects
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A

Fatigue (materials), Microstructural effects
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A

Fatigue (materials), Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. I. Creep—Fatigue Damage. 401-406A
Mixed-Mode I and II Fatigue Threshold and Crack Closure in Dual-Phase Steels. 1713-1723A
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A

Fatigue cracking
See Fatigue (materials)
Fatigue failure

Fatigue failure, Microstructural effects
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A

Fatigue fracture
See Fatigue failure

Fatigue life, High temperature effects
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A

Fatigue life, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Fatigue life, Stress effects
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A

Fatigue properties
See Fatigue (materials)

Fatigue strength, Cooling effects
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A

Fatigue strength, Stress effects
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Ferric compounds
See Iron compounds

Ferrite
The Chromium Equivalents of Ferrite Stabilizers in Commercial Stainless Steels. 2827-2828A

Ferrite, Alloying effects
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Ferrite, Cooling effects
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A
Precipitation of BCC Phase from Nonequilibrium A13-Type Phase in Rapidly Solidified High-Carbon Fe-Cr-Mo Alloy. 2542-2546A

Ferrite, Deformation effects
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Ferrite, Diffusion effects
Diffusion in Growth of Bainite. (Conference Paper) 1957-1966A
Formation Mechanism of Bainitic Ferrite in an Fe)2% Si)0.6% C Alloy. (Conference Paper) 2009-2016A

Ferrite, Heating effects
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A

Ferrite, Stress effects
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A

Ferrite, Temperature effects
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A
Morphology of Bainite and Widmanstatten Ferrite. (Conference Paper) 1981-1989A

Ferritic stainless steels, Heat treatment
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A

Ferroalloys
See Ferronickel

Ferromagnetism, Alloying effects
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A

Ferronickel, Reduction (chemical)
An Analysis of Slag Stratification in Nickel Laterite Smelting Furnaces Due to Composition and Temperature Gradients. 491-496B

Ferrous alloys
See also Cast iron
Steels

Ferrous alloys, Coatings
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A

Ferrous alloys, Diffusion
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Ferrous alloys, Heat treatment
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A
Multiphase Precipitation of Carbides in Fe-C Systems. I. Model Based Upon Simple Kinetic Reactions. 917-925B
Multiphase Precipitation of Carbides in Fe-C System. II. Model Based on Kinetics of Complex Reactions. 927-935B

Ferrous alloys, Mechanical properties
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A

Ferrous alloys, Phase transformations
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Ferrous alloys, Phases (state of matter)
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A
Formation Mechanism of Bainitic Ferrite in an Fe)2% Si)0.6% C Alloy. (Conference Paper) 2009-2016A

Ferrous alloys, Powder technology
Mechanical Processing of Iron Powders in Reactive and Nonreactive Gas Atmospheres. 381-388A

Ferrous compounds
See Iron compounds

Ferrous metals
See Ferrous alloys

Fiber composites, Heat treatment
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Fiber composites, Mechanical properties
Analysis of Thermally Induced Stress and Strain in Continuous Fiber-Reinforced Composites. 415-425A
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A

Fiber composites, Oxidation
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A

Fiber composites, Phases (state of matter)
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A

Fiber composites, Physical properties
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A

Fiber composites, Synthesis
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B
Thermofluid Analysis and Design of a Low-Temperature Preforming Process. 761-771B

Fiber metal brazing
See Brazing

Fields (physics)
See Magnetic fields

Filler metal
See also Solders
Kinetic Study of Low-Temperature Transient Liquid Phase Joining of an Aluminum-SiC Composite. 2705-2714A

Films
See Thin films

Finite element method
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B
Depth of Melt-Pool and Heat-Affected Zone in Laser Surface Treatments. 427-435A
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Simulation of Argon Gas Flow Effects in a Continuous Slab Caster. 527-547B
Mathematical and Physical Modeling Studies of Molten Aluminum Flow in a Tundish. 669-680B
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A

Fissile materials
See Nuclear fuels

Flexural vibration
See Fatigue (materials)

Flotation
Observations on the Effect of Medium Density and Viscosity on the Rate of Induced Aeration in Agitated Vessels. 303-306B

Flow
See Fluid flow

Flow stress
See Yield strength

Fluid bed reduction
See Fluidized bed reduction

Fluid flow
See also Gas flow
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
Mathematical and Physical Modeling Studies of Molten Aluminum Flow in a Tundish. 669-680B
Critical Fluid-Flow Phenomenon in a Gas-Stirred Ladle. 681-693B
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A

Fluid mechanics
Sticking of Solids in Liquids. 397-403B

Fluid mold casting
See Centrifugal casting

Fluidity
See Viscosity

Fluidized bed reduction
Effect of Cobalt Addition on the Liquid-Phase Sintering of Tungsten—Copper Prepared by the Fluidized Bed Reduction Method. 1575-1578A

Focussons
See Displacements (lattice)

Foil, Welding
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A

Foil (metal)
See Foil

Foil brazing
See Brazing

Foils (structural shapes)
See Foil

Force
See Loads (forces)

Forging
See Hot forging

Forgings, Mechanical properties
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A

Formability
A Plane Strain Punch Stretching Test for Evaluating Stamping Formability of Steel Sheets. 2199-2205A

Formability, Deformation effects
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A

Formability, Microstructural effects
Effects of Texture Gradients on Yield Loci and Forming Limit Diagrams in Various Aluminum-Lithium Sheet Alloys. 2783-2795A

Formation entropy
See Entropy
Heat of formation

Forming
See Punching
Stamping
Stretching
Superplastic forming

Forming limit
See Formability

Fracture mechanics
See Crack opening displacement

Fracture strength, Alloying effects
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Fracture strength, Heating effects
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Fracture strength, Stress effects
The Effect of Triaxial Stress on Ductility and Fracture Morphology of Ferritic Spheroidal Graphite Cast Iron. 821-825A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A

Fracture toughness, Cooling effects
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Fracture toughness, Deformation effects
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A

Fracture toughness, Heating effects
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Fracture toughness, High temperature effects
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A

Fracture toughness, Microstructural effects
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A

Fracture toughness, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Fracture toughness, Stress effects
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A

Fracturing
See Brittle fracture
Ductile fracture
Intergranular fracture
Transgranular fracture

Free energy
See also Activation energy
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
Thermodynamic Properties of Ternary Liquid Cu—Mg—Ni Alloys. 63-72B
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B
Thermodynamic Study of the Bi—Ca—O System. 97-101B
Thermodynamic Stability of Metallurgical Coke Relative to Graphite. 149-151B
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A
An Alternative Gibbs—Duhem Method for the Calculation of Activities From the Redox Data for Iron Oxide in Ternary Oxide Systems. 277-280B
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B
Estimation of the Viscosities of Binary Metallic Melts Using Gibbs Energies of Mixing. 589-595B
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A
The Shapes of the Phase Boundaries of Two Ideal Solution Phases in Ternary and Higher Order Systems. 656-658A
The Grand Partition Function of Dilute Biregular Solutions. 703-711B
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1, 0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Free energy of activation
See Activation energy

Free energy of dissociation
See Free energy
Heat of formation

Free energy of formation
See Free energy
Heat of formation

Free energy of reaction
See Free energy

Free energy of solution
See Free energy
Heat of solution

Free energy of transformation
See Free energy

Freezing points
See Melting points

Friction
See Sliding friction

Frictional wear, Microstructural effects
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A

Fuels
See Nuclear fuels

Furnaces
See Blast furnaces

Fused salt electrolysis
See Hall Heroult process

Fusion (melting)
See Melting

Fusion welding
See Electron beam welding

Gallium, Ternary systems
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Gallium base alloys, Reactions (chemical)
Thermodynamic Estimation of ΔH_f° for $CaGa_2$ Intermetallic. 151-154B

Galvanic cells
See Electrolytic cells

Galvanized steels, Heat treatment
Interfacial Layer Development in Hot-Dip Galvanneal Coatings on Interstitial Free (IF) Steel. 2101-2109A

Galvanizing
See also Hot dip galvanizing
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B

Galvannealing
See Annealing

Gamma ray photoelectron spectroscopy
See Photoelectron spectroscopy

Gas flow
Critical Fluid-Flow Phenomenon in a Gas-Stirred Ladle. 681-693B

Gas metal arc welding
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B

Gas permeability
See Permeability

Gas tungsten arc welding
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Gas turbine engines, Fabrication
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Gas turbines
See Gas turbine engines

Gases
See Air

Germanium, Ternary systems
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1$, $0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A

Gibbs free energy
See Free energy

Glazing
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A

GMAW
See Gas metal arc welding

Gold, Coatings
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Gold, Extraction
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
An Electrochemical Study on the Dissolution of Gold and Copper from Gold/Copper Alloys. 817-827B
The Mechanism of Elution of Gold Cyanide From Activated Carbon. 829-838B

Gold, Ternary systems
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1$, $0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A

Gold base alloys, Atomic properties
Determination of the Short-Range Order Structure of Au—25 at.% Fe Using Wide-Angle Diffuse Synchrotron X-Ray Scattering. 1561-1573A

Gold base alloys, Phase transformations
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A

Grain boundaries
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A
Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A

Grain boundaries, Coating effects
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Grain boundaries, Deformation effects
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Grain boundaries, Diffusion effects
Determination of Pore Mobility During Sintering. 81-87A

Grain boundaries, Heating effects
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A
The Cause of Matrix Penetration of W/W Grain Boundaries During Heat Treatment of W-Ni-Fe Heavy Alloy. 2828-2831A

Grain boundaries, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Grain boundaries, Stress effects
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A

Grain boundaries, Temperature effects
Morphology of Bainite and Widmanstätten Ferrite. (Conference Paper) 1981-1989A

Grain boundaries, Welding effects
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Grain boundary migration, Stress effects
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Grain boundary sliding, Deformation effects
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A

Grain growth
Mechanical Processing of Iron Powders in Reactive and Nonreactive Gas Atmospheres. 381-388A

Grain growth, Alloying effects
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Grain growth, Cooling effects
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A

Grain growth, Heating effects
Discussion of "Grain Growth of a Superplastic 7475 Aluminum Alloy". 221-223A

Grain growth, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Grain refinement, Composition effects
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A

Grain size
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
Mechanical Processing of Iron Powders in Reactive and Nonreactive Gas Atmospheres. 381-388A
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Grain size, Alloying effects
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A

Grain size, Coating effects
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Grain size, Cooling effects
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A

Grain size, Deformation effects
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Grain size, Diffusion effects
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A

Grain size, Heating effects
Discussion of "Grain Growth of a Superplastic 7475 Aluminum Alloy". 221-223A
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A

Grain size, Stress effects
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Grain size stress effects
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A

Grain structure
See also Dendritic structure
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A
Factors Influencing the Exceptional Ductility of a Superplastic Pb-62% Sn Alloy. 2309-2311A

Grain structure, Alloying effects
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A

Grain structure, Cooling effects
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A

The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A

Grain structure, Deformation effects
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Grain structure, Diffusion effects
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Grain structure, Environmental effects
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A

Grain structure, Heating effects
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Grain structure, High temperature effects
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A

Grain structure, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Grain structure, Stress effects
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A

Grain structure, Temperature effects
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A

Graphite, Reactions (chemical)
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Graphitic structure
See also Nodular graphitic structure

Graphitic structure, Heating effects
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A

Gravitation
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A

Gravity
See Gravitation

Gray cast iron
See Gray iron

Gray iron
See also Nodular iron

Gray iron, Casting
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A

Green sand casting
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B

Grey iron
See Gray iron

Growth
See Grain growth

GTAW
See Gas tungsten arc welding

Hall Heroult process
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. I. Flow in Cells With a Flat Anode. 333-340B
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B
Energy Efficiency Considerations on Monopolar vs. Bipolar Fused Salt Electrolysis Cells. 661-668B
Measurements of the Electrical Conductivity of Wood's Alloy and Other Low Melting Point Alloys. 937-939B

Hard metals
See Cemented carbides

Hard soldering
See Brazing

Hardening
See also Surface hardening

Hardening, Heating effects
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A

Hardmetals
See Cemented carbides

Hardness
See also Diamond pyramid hardness
Microhardness
Surface hardness

Hardness, Coating effects
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A

Hardness, Deformation effects
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A

Hardness, Heating effects
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A

HAZ
See Heat affected zone

Hazelett process
See Continuous casting

Heat affected zone
Depth of Melt-Pool and Heat-Affected Zone in Laser Surface Treatments. 427-435A
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Heat capacity
See Specific heat

Heat checking
See Thermal fatigue

Heat conductivity
See Thermal conductivity

Heat content
See Enthalpy

Heat flow
See Heat transmission

Heat flux
See Heat transmission

Heat measurement
See Calorimetry

Heat of activation
See Activation energy

Heat of condensation
See Heat of vaporization

Heat of decomposition
See Heat of formation

Heat of dissociation
See Heat of formation

Heat of dissolution
See Heat of solution

Heat of formation
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Heat of mixing
See also Heat of solution
Estimation of the Viscosities of Binary Metallic Melts Using Gibbs Energies of Mixing. 589-595B
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Heat of reaction
See Heat of formation

Heat of solution
The Grand Partition Function of Dilute Biregular Solutions. 703-711B

Heat of transformation
See Heat of vaporization

Heat of vaporization
Thermodynamic Predictions for Material Processing in a Plasma Reactor Using Solid Oxide Feed Materials. 713-720B

Heat resistant alloys
See Superalloys

Heat transfer
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
Thermodynamic Predictions for Material Processing in a Plasma Reactor Using Solid Oxide Feed Materials. 713-720B
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B

Heat transmission
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A

Heat treatment
See also Annealing
Austenitizing
Isothermal treatment
Quenching (cooling)
Solution heat treatment
Tempering
The Cause of Matrix Penetration of W/W Grain Boundaries During Heat Treatment of W-Ni-Fe Heavy Alloy. 2828-2831A

Heating
See Roasting

Heats (energies)
See Heat of mixing

Heavy metal alloys
See Lead base alloys
Tin base alloys

Heavy metals
See Antimony
Bismuth
Lead (metal)
Tin

Heliarc welding
See Gas tungsten arc welding

Helium, Dopants
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Helmholtz free energy
See Free energy

Heterogeneous structure
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A

Heterogeneous structure, Alloying effects
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A

Heterogeneous structure, Cooling effects
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A

Heterogeneous structure, Deformation effects
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A

Heterogeneous structure, Heating effects
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A

Heterogeneous structure, Stress effects
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A

Heterogeneous structure stress effects
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A

Hexagonal close packed lattice
See Hexagonal lattice

Hexagonal lattice
Thermodynamics and Long-Range Order of Interstitials in a Hexagonal Close-Packed Lattice. 2797-2814A

High alloy steels
See Maraging steels
Stainless steels

High carbon steels, Mechanical properties
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

High carbon steels, Rolling
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A

High energy electron diffraction
See Electron diffraction

High energy milling
See Mechanical alloying

High strength steels, Corrosion
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

High strength steels, Mechanical properties
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

High temperature
Effect of Internal Heating During Hot Compression on the Stress-Strain Behavior of Alloy 304L. 2737-2752A

HIP
See Hot isostatic pressing

Homogeneous structure
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A

Homogenizing
Effect of Supereutectic Homogenization on Incidence of Porosity in Aluminum Alloy 2014 Ingot. 111-122B
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Hot brittleness
See Brittleness

Hot cracking (welds)
See Weld defects

Hot deformation
See Deformation

Hot dip coating
See Hot dip galvanizing

Hot dip galvanizing
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A
Interfacial Layer Development in Hot-Dip Galvanneal Coatings on Interstitial Free (IF) Steel. 2101-2109A

Hot ductility
See Ductility

Hot extrusion
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Hot forging
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A
Microstructure Development During Conventional and Isothermal Hot Forging of a Near-γ Titanium Aluminide. 2753-2768A

Hot forming
See Hot forging

Hot hardness
See Hardness

Hot isostatic pressing
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A
Mechanical Processing of Iron Powders in Reactive and Nonreactive Gas Atmospheres. 381-388A
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Hot pressing
See Hot isostatic pressing

Hot reduction
See Hot working

Hot rolling
See also Pack rolling
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A

Hot roughing
See Hot rolling

Hot shortness
See Brittleness

Hot strength
See Tensile strength

Hot tensile strength
See Tensile strength

Hot torsion tests
See Torsion tests

Hot working
See also Hot extrusion
Hot rolling
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Hydrides, Environment
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Hydrochloric acid leaching
Slurry Filtration and Cake Washing After the HCl-Leach of Magnesite and Serpentine—Continuous Washing Model. 321-331B

Hydrochlorination
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Hydrogen
See also Deuterium
Tritium

Hydrogen, Alloying elements
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Hydrogen, Dopants
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Hydrogen, Environment
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Hydrogen, Sorption
Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A

Hydrogen compounds
See Hydrides

Hydrogen embrittlement, Diffusion effects
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

Hydrogen embrittlement, Environmental effects
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Hydrogen embrittlement, Heating effects
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A

Hydrogenation
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B

Hydrogenation, Environmental effects
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Hydrogenation, Heating effects
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A

Hydrolysis
Preparation and Properties of Fine Hematite Powders by Hydrolysis of Iron Carboxylate Solutions. 165-170B

Hydrolytic resistance
See Corrosion resistance

Hydrometallurgy
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B
Slurry Filtration and Cake Washing After the HCl-Leach of Magnesite and Serpentine—Continuous Washing Model. 321-331B
The Ferric Fluosilicate Leaching of Lead Concentrates. I. Kinetic Studies. 473-480B
An Electrochemical Study on the Dissolution of Gold and Copper from Gold/Copper Alloys. 817-827B
The Mechanism of Elution of Gold Cyanide From Activated Carbon. 829-838B

Hydrostatic pressure
The Effect of Triaxial Stress on Ductility and Fracture Morphology of Ferritic Spheroidal Graphite Cast Iron. 821-825A
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

I R drop
See Electric potential

Immersion testing (ultrasonic)
See Ultrasonic testing

Impact strength, Heating effects
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A

Impact strength, Stress effects
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A

Impact tests
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Impact toughness
See Impact strength

Impermeability
See Permeability

Impurities
See also Interstitial impurities

Impurities, Diffusion
Anomalous Diffusion of Aluminum in β-Titanium. 873-876A

In situ leaching, pH effects
Simulation of In Situ Uraninite Leaching. I. A Partial Equilibrium Model of the NH_4HCO_3—$(NH_4)_2CO_3$—H_2O_2 Leaching System. 171-183B

Incineration
See Combustion

Inclusions, Deformation effects
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Indium, Ternary systems
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Inelasticity
See Elasticity

Inert gas welding
See Gas tungsten arc welding

Ingot casting
See also Direct chill casting
Natural Convection in an Aluminum Ingot: a Mathematical Model. 293-302B
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A

Ingots, Microstructure
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A

Initiation
See Crack initiation

Injection casting
See Die casting

Injection molding
Thermofluid Analysis and Design of a Low-Temperature Preforming Process. 761-771B

Inorganic compounds
See Ceramics

Intensity
See Stress intensity

Interface reactions
Kinetics in Multicomponent Metallic)Ionic Systems. 579-587B
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Interface reactions, Alloying effects
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Interface reactions, Diffusion effects
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature ($\leq$ 500°C) Fe—NI Phase Diagram. 1627-1637A

Interface reactions, Heating effects
Interfacial Layer Development in Hot-Dip Galvanneal Coatings on Interstitial Free (IF) Steel. 2101-2109A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Interface reactions, Low temperature effects
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures ($\leq$ 400°C). 1639-1648A

Interface reactions, Temperature effects
Kinetics of Interlayer Formation on Polycrystalline α-Al_2O_3/Copper-Titanium Alloy Interface. 2083-2090A

Interfaces
Diffusional Boundary Conditions During Coarsening of Elastically Interacting Precipitates. 2695-2703A
Numerical Analysis of the Rapid Solidification of Gas-Atomized Al-8 wt.% Iron Droplets. 2815-2826A

Interfacial energy
See Surface energy

Interfacial surface tension
See Surface tension

Intergranular corrosion, Heating effects
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A

Intergranular corrosion, Stress effects
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A

Intergranular fracture, Heating effects
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Intergranular fracture, Stress effects
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A

Intergranular precipitation, Diffusion effects
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature ($\leq$ 500°C) Fe—NI Phase Diagram. 1627-1637A

Interlayers
The Effect of Substrate on the Microstructure and Creep of Eutectic Indium-Tin. 2715-2722A

Intermetallic compounds
See Intermetallics

Intermetallic phases
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$. 47-56A
Triclinic Ni_2Al Phase in 63.1 at.% NiAl. 57-61A
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Effect of Cobalt Addition on the Liquid-Phase Sintering of Tungsten—Copper Prepared by the Fluidized Bed Reduction Method. 1575-1578A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A

Intermetallic phases, Alloying effects
A Process for Debismuthizing Lead With Magnesium. 379-384B

Intermetallic phases, Composition effects
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Intermetallic phases, Cooling effects
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A

Intermetallic phases, Deformation effects
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A

Intermetallic phases, Diffusion effects
Interdiffusion Between Uranium—Zirconium Fuel vs. Selected Cladding Steels. 1649-1653A
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Intermetallic phases, Environmental effects
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Intermetallic phases, Heating effects
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Intermetallic phases, Stress effects
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Intermetallic phases, Temperature effects
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
Standard Enthalpies of Formation of Some Praseodymium Alloys of High-Temperature Direct Synthesis Calorimetry. 73-77B
Thermodynamic Estimation of ΔH_f° for $CaGa_2$ Intermetallic. 151-154B
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A
Improved Thermochemical Calculations for Maraging Steels and Comparison With Atom Probe Measurement of Phase Composition. 2538-2539A

Intermetallic phases, Welding effects
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Intermetallics, Coatings
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B

Intermetallics, Composite materials
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Intermetallics, Extrusion
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Intermetallics, Forging
Microstructure Development During Conventional and Isothermal Hot Forging of a Near-γ Titanium Aluminide. 2753-2768A

Intermetallics, Mechanical properties
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A
Ordering and Mechanical Strength in $L1_2$ Cubic Titanium Trialuminides. 449-451A
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A
Creep Characteristics of Single Crystalline Ni_3Al(Ta,B). 2477-2482A
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Intermetallics, Microstructure
Discussion of "Crystallographic Characterization of the Al-Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$". 2535-2538A

Intermetallics, Powder technology
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A

Intermetallics, Rolling
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A

Intermetallics, Superconductivity
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Internal combustion engines
See Gas turbine engines

Internal stress
See Residual stress

Interstitial impurities
Thermodynamics and Long-Range Order of Interstitials in a Hexagonal Close-Packed Lattice. 2797-2814A

Investment casting
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A

Investment casting, Microstructure
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A

Investment castings, Heat treatment
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A

Investment castings, Mechanical properties
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A

Investment molding
See Investment casting

Ion implantation
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A

IR drop
See Electric potential

Iron, Alloying elements
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Iron, Extraction
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B

Iron, Powder technology
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A

Iron, Reduction (chemical)
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Iron, Steel making
Sulfur Determination in Carbon-Saturated Iron by Solid-State Electrochemical Sensor. 561-568B

Iron, Ternary systems
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A

Iron and steel making
See Ironmaking
Steel making

Iron base alloys
See Ferrous alloys

Iron compounds, Coatings
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B

Iron constituents
See Alpha iron
Delta iron

Iron ores, Reduction (chemical)
Study of Nonisothermal Reduction of Iron Ore—Coal/Char Composite Pellet. 15-26B

Iron oxides
See Wustite

Iron powder
See Iron

Ironmaking
Study of Nonisothermal Reduction of Iron Ore—Coal/Char Composite Pellet. 15-26B
Vanadium Distribution in Melts Intermediate to Ferroalloy Production From Vanadiferous Slag. 27-32B
An Alternative Gibbs—Duhem Method for the Calculation of Activities From the Redox Data for Iron Oxide in Ternary Oxide Systems. 277-280B
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B
Measurements of High-Temperature Viscosities of Liquid Boron Trioxide. 876-881A
A Thermodynamic Study of the Molybdenum-Oxygen System. 885-891B

Irradiation damage
See Radiation damage

Isostatic pressing
See Hot isostatic pressing

Isothermal treatment
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A

Izod impact tests
See Impact tests

Jet engines
See Gas turbine engines

Joining
See also Brazing
Kinetic Study of Low-Temperature Transient Liquid Phase Joining of an Aluminum-SiC Composite. 2705-2714A

Joints
See Soldered joints
Welded joints

Junghans Rossi casting
See Continuous casting

Killed steels
See Aluminum killed steels

Kinetics
See also Reaction kinetics
Multiphase Precipitation of Carbides in Fe-C Systems. I. Model Based Upon Simple Kinetic Reactions. 917-925B
Multiphase Precipitation of Carbides in Fe-C System. II. Model Based on Kinetics of Complex Reactions. 927-935B
Growth Kinetics and High-Temperature TEM In Situ Observation of Bainite in a Cu-Zn Alloy. (Conference Paper) 2609-2614A

Kold casting
See Investment casting

Ladle metallurgy
A Comparison of Three Mathematical Modeling Procedures for Simulating Fluid Flow Phenomena in Bubble-Stirred Ladles. 308-312B
Critical Fluid-Flow Phenomenon in a Gas-Stirred Ladle. 681-693B

Lamellar structure, Alloying effects
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A

Lamellar structure, Deformation effects
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A

Lamellar structure, Heating effects
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Lamellar structure, High temperature effects
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Lamellar structure, Stress effects
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A

Lamellar structure, Temperature effects
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A

Laminates
See Bimetals

Laser beam hardening
Depth of Melt-Pool and Heat-Affected Zone in Laser Surface Treatments. 427-435A

Laser beam melting
A Simple but Realistic Model for Laser Cladding. 281-291B
Depth of Melt-Pool and Heat-Affected Zone in Laser Surface Treatments. 427-435A

Laser processing
See also Laser beam hardening
Laser beam melting
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B
Laser Cladding of Nickel-Aluminum Bronze on Al Alloy AA333. 749-759B

Lattice constant
See Lattice parameters

Lattice defects
See Crystal defects

Lattice displacements
See Displacements (lattice)

Lattice parameters
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B
The Shapes of the Phase Boundaries of Two Ideal Solution Phases in Ternary and Higher Order Systems. 656-658A
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A
Mechanism of the Early Stages of α_1 Plate Formation in a Cu-39% Zinc Alloy. (Conference Paper) 2631-2637A

Lattice parameters, Alloying effects
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A

Lattice parameters, Composition effects
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A

Lattice parameters, Cooling effects
Chemical Composition and Structural Identification of Eutectic Carbide in 1% Manganese Ductile Iron. 911-918A

Lattice parameters, Diffusion effects
Determination of Pore Mobility During Sintering. 81-87A
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A

Lattice parameters, Heating effects
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A

Lattice parameters, Radiation effects
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A

Lattice parameters, Welding effects
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A

Lattice vacancies
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A

Lattice vacancies, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Lattices
See Crystal lattices

Laundering
See Washing

Laves phase, Composition effects
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A

Laves phase, Temperature effects
Improved Thermochemical Calculations for Maraging Steels and Comparison With Atom Probe Measurement of Phase Composition. 2538-2539A

Layers
See Interlayers

Leaching
See also Bacterial leaching
In situ leaching
The Ferric Fluosilicate Leaching of Lead Concentrates. I. Kinetic Studies. 473-480B

Lead (metal), Alloying elements
A Process for Debismuthizing Lead With Magnesium. 379-384B

Lead (metal), Binary systems
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B

Lead (metal), Extraction
Physical and Mathematical Modeling of Pyrometallurgical Channel Reactors With Bottom Gas Injection. Residence Time Distribution Analysis and Ideal-Reactor-Network Model. 207-219B
The Ferric Fluosilicate Leaching of Lead Concentrates. I. Kinetic Studies. 473-480B

Lead (metal), Microstructure
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A

Lead (metal), Physical properties
Sticking of Solids in Liquids. 397-403B

Lead (metal), Soldering
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Lead (metal), Ternary systems
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
The Grand Partition Function of Dilute Biregular Solutions. 703-711B

Lead base alloys, Casting
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A

Lead base alloys, Microstructure
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A

Lead base alloys, Reactions (chemical)
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Life
See Fatigue life

Light metal alloys
See Aluminum base alloys
Magnesium base alloys
Titanium base alloys

Light metals
See Aluminum
Magnesium
Titanium

Line defects
See Dislocations

Linking
See Joining

Liquefaction
See Melting

Liquid metals, Physical properties
Densities of Liquid Fe-Ni and Fe-Cr Alloys. 939-942B

Liquid phase diffusion
See Diffusion

Liquid phase sintering
Preparation and Properties of Fine Hematite Powders by Hydrolysis of Iron Carboxylate Solutions. 165-170B
Effect of Cobalt Addition on the Liquid-Phase Sintering of Tungsten—Copper Prepared by the Fluidized Bed Reduction Method. 1575-1578A

Liquid phases
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
An Empirical Correlation Between Contact Angles and Surface Tension in Some Ceramic—Metal Systems. 225-230A
Large-Scale Measurements of the Physical Characteristics of Round Vertical Bubble Plumes in Liquids. 359-371B
Sticking of Solids in Liquids. 397-403B
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B
Backmixing in Channel Reactors With High-Strength Bottom Gas Injection. 619-623B
Surface Tensions of Liquid Fe-Cr and Fe-Cr-N Alloys. 626-628B
The Shapes of the Phase Boundaries of Two Ideal Solution Phases in Ternary and Higher Order Systems. 656-658A
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
X-Ray Microscopic Observations of Metal Solidification Dynamics. 1775-1777A
Kinetic Study of Low-Temperature Transient Liquid Phase Joining of an Aluminum-SiC Composite. 2705-2714A

Liquid phases, Alloying effects
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Liquid phases, Cooling effects
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A
Microsegregation in Cellular Solidification. 2295-2301A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A

Liquid phases, Diffusion effects
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A

Liquid phases, High temperature effects
Density Measurements of the Lithium Fluoride/Lithium Sulfide Eutectic at High Temperature. 773-778B

Liquid phases, Temperature effects
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Thermodynamic Properties of Ternary Liquid Cu—Mg—Ni Alloys. 63-72B
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1$, $0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Liquid phases, Welding effects
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Liquids
See Liquid metals
Melts

Liquidus, Temperature effects
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Lithium, Physical properties
Density Measurements of the Lithium Fluoride/Lithium Sulfide Eutectic at High Temperature. 773-778B

Live loads
See Cyclic loads

Lixiviation
See Leaching

Load distribution
See Loads (forces)

Loads (forces)
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. I. Creep—Fatigue Damage. 401-406A
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A
Mixed-Mode I and II Fatigue Threshold and Crack Closure in Dual-Phase Steels. 1713-1723A
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A
Load-Signature Analysis for Pack Rolling of Near-Gamma Titanium Aluminide Alloys. 2539-2542A

Long range order
Ordering and Mechanical Strength in $L1_2$ Cubic Titanium Trialuminides. 449-451A
Long-Range Ordering in the Early Stages of Precipitation)a Brief Review. (Conference Paper) 2565-2568A
Thermodynamics and Long-Range Order of Interstitials in a Hexagonal Close-Packed Lattice. 2797-2814A

Long range order, Diffusion effects
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Long range order, Stress effects
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Loops (dislocation)
See Dislocation loops

Lost wax investment casting
See Investment casting

Lost wax process
See Investment casting

Low alloy steels
See also Boron steels

Low alloy steels, Casting
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B

Low alloy steels, Heat treatment
Atom Probe Field Ion Microscopy Study of the Partitioning of Substitutional Elements During Tempering of a Low-Alloy Steel Martensite. 499-508A

Low alloy steels, Mechanical properties
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Low alloy steels, Microstructure
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Low alloy steels, Phases (state of matter)
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
Titanium-Rich Mineral Phases and the Nucleation of Bainite. 1603-1611A
Diffusion in Growth of Bainite. (Conference Paper) 1957-1966A

Low carbon steels, Coating
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B

Low carbon steels, Mechanical properties
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Low carbon steels, Reactions (chemical)
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Low carbon steels, Rolling
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A

Low cycle fatigue, Heating effects
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A

Low cycle fatigue, High temperature effects
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A

Low cycle fatigue, Stress effects
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Macrostructure, Temperature effects
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B

Magnesium, Alloying elements
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A

Magnesium, Binary systems
Mg—Pb Phase Diagram and Phase Transformations in the Intermetallic Compounds Mg_2Pb and β'. 265-275B

Magnesium, Powder technology
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A

Magnesium, Steel making
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B

Magnesium, Ternary systems
Thermodynamic Properties of Ternary Liquid Cu—Mg—Ni Alloys. 63-72B
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B

Magnesium base alloys, Composite materials
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A

Magnesium base alloys, Phases (state of matter)
A Process for Debismuthizing Lead With Magnesium. 379-384B

Magnetic fields
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A

Magnetic flux welding
See Gas metal arc welding

Magnetic force
See Magnetic fields

Magnetic permeability, Heating effects
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A

Magnetic properties
See Curie temperature
Magnetic permeability
Magnetoelastic effect

Magnetic susceptibility
See Magnetic permeability

Magnetism
See Ferromagnetism

Magnetoacoustic effect
See Magnetoelastic effect

Magnetoelastic effect
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A

Magnetomechanical properties
See Magnetoelastic effect

Manganese, Alloying elements
Behavior of Steels Near the Incipient Melting Temperature. 125-133A
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Manganese steels, Mechanical properties
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A

Maraging steels, Heat treatment
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A

Maraging steels, Phases (state of matter)
Improved Thermochemical Calculations for Maraging Steels and Comparison With Atom Probe Measurement of Phase Composition. 2538-2539A

Martensite
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A

Martensite, Deformation effects
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Martensite, Diffusion effects
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature ($\leq$ 500°C) Fe—Ni Phase Diagram. 1627-1637A

Martensite, Heating effects
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A
Atom Probe Field Ion Microscopy Study of the Partitioning of Substitutional Elements During Tempering of a Low-Alloy Steel Martensite. 499-508A
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A

Martensite, Low temperature effects
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures ($\leq$ 400°C). 1639-1648A

Martensitic stainless steels, Diffusion
Interdiffusion Between Uranium—Zirconium Fuel vs. Selected Cladding Steels. 1649-1653A

Martensitic stainless steels, Heat treatment
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A

Martensitic transformations
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A

Martensitic transformations, Alloying effects
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A

Martensitic transformations, Cooling effects
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A

Martensitic transformations, Diffusion effects
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A
Atomic Site Correspondence and Surface Relief in the Formation of Plate-Shaped Transformation Products. (Conference Paper) 1917-1922A

Martensitic transformations, Stress effects
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Materials
See Ceramics
Dissimilar materials

Mathematical analysis
See Numerical analysis

Mathematical models
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Standard Enthalpies of Formation of Some Praseodymium Alloys of High-Temperature Direct Synthesis Calorimetry. 73-77B
Determination of Pore Mobility During Sintering. 81-87A

Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B
High-Temperature Isopiestic Studies on the Ternary Slag PbO—SiO_2—B_2O_3 at 1273K. 103-109B
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B
Simulation of In Situ Uraninite Leaching. I. A Partial Equilibrium Model of the NH_4HCO_3—$(NH_4)_2CO_3$—H_2O_2 Leaching System. 171-183B
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
Physical and Mathematical Modeling of Pyrometallurgical Channel Reactors With Bottom Gas Injection. Residence Time Distribution Analysis and Ideal-Reactor-Network Model. 207-219B
Discussion of "Grain Growth of a Superplastic 7475 Aluminum Alloy". 221-223A
A Simplified Method of Calculating the Stress Field at the Tip of a Discrete Dislocation Pileup in a Finite Crystal. 223-225A
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B
An Alternative Gibbs—Duhem Method for the Calculation of Activities From the Redox Data for Iron Oxide in Ternary Oxide Systems. 277-280B
A Simple but Realistic Model for Laser Cladding. 281-291B
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Natural Convection in an Aluminum Ingot: a Mathematical Model. 293-302B
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Equilibrium Values for the Dissolution of Solid Copper Into FeS—Na_2S Mattes. 306-308B
A Comparison of Three Mathematical Modeling Procedures for Simulating Fluid Flow Phenomena in Bubble-Stirred Ladles. 308-312B
Slurry Filtration and Cake Washing After the HCl-Leach of Magnesite and Serpentine—Continuous Washing Model. 321-331B
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Estimation of Interfacial Shear Strength Between Superconducting Oxides and Silver Sheath From Multiple-Fracture Phenomenon of the Oxide. 349-356A
A Mathematical Model of Ionic Transport in a Porous Diaphragm of a Chrome—Alum Cell. 351-358B
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A
Large-Scale Measurements of the Physical Characteristics of Round Vertical Bubble Plumes in Liquids. 359-371B
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A
Sticking of Solids in Liquids. 397-403B
Analysis of Thermally Induced Stress and Strain in Continuous Fiber-Reinforced Composites. 415-425A
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Equilibrium Oxygen Pressures of Iron Silicate Slags. 463-465B
An Analysis of Slag Stratification in Nickel Laterite Smelting Furnaces Due to Composition and Temperature Gradients. 491-496B
Small Cell Experiments for Electrolytic Reduction of Uranium Oxides to Uranium Metal Using Fluoride Salts. 505-518B
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
A Model for Estimation of Viscosities of Complex Metallic and Ionic Melts. 519-525B
Local Melting in Al—Mg—Zn—Alloys. 521-530A
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A
Sulfur Determination in Carbon-Saturated Iron by Solid-State Electrochemical Sensor. 561-568B
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A
Kinetics in Muliticomponent Metallic)Ionic Systems. 579-587B
Estimation of the Viscosities of Binary Metallic Melts Using Gibbs Energies of Mixing. 589-595B
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A
Equilibrium Distribution of Fe, Ni, Sb, and Sn between Liquid Cu and a CaO-Rich Slag. 645-651B
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A
The Shapes of the Phase Boundaries of Two Ideal Solution Phases in Ternary and Higher Order Systems. 656-658A
Energy Efficiency Considerations on Monopolar vs. Bipolar Fused Salt Electrolysis Cells. 661-668B
Critical Fluid-Flow Phenomenon in a Gas-Stirred Ladle. 681-693B
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
The Grand Partition Function of Dilute Biregular Solutions. 703-711B
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. I. On the Determination of Interdiffusion Coefficients. 741-751A
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A
Thermofluid Analysis and Design of a Low-Temperature Preforming Process. 761-771B
Density Measurements of the Lithium Fluoride/Lithium Sulfide Eutectic at High Temperature. 773-778B
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A
Modeling of Metallurgical Emulsions. 855-864B
Thermodynamics of the Liquid $[xCu + yAu + (1-x-y)Ge]$, $(0.75 \leq x \leq 1, 0 \leq y \leq 0.125)$ Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A
Anomalous Diffusion of Aluminum in β-Titanium. 873-876A
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Fracture of Glass in Tensile and Bending Tests. 961-968A
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A
Calorimetric Evaluation of Nonequilibrium State in As-Melt Spun Al—1.72 and Al—3.12 at.% Cu Alloys and Al—6.74, Al—8.48, and Al—11.97 at.% Si Alloys. 1102-1104A
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures ($\leq$ 400°C). 1639-1648A
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A
Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A
Microsegregation in Cellular Solidification. 2295-2301A
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A
Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Mathematical models, Cooling effects

On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A

Mathematical models, Deformation effects
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A

Mathematics
See Finite element method
Mathematical models

Mattes
See Copper mattes

Measurement
See Mechanical measurements

Mechanical alloying
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A
Mechanical Processing of Iron Powders in Reactive and Nonreactive Gas Atmospheres. 381-388A
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A

Mechanical measurements
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Mechanical properties
See Bonding strength
Brittleness
Compressive properties
Creep (materials)
Ductile brittle transition
Ductility
Elastic constants
Elasticity
Fatigue (materials)
Fracture strength
Hardness
Impact strength
Plasticity
Shear properties
Stiffness
Strain
Tear strength
Thermoelastic properties
Toughness
Wear
Wear resistance

Mechanical tests
See Bend tests
Compression tests
Scratch tests
Tension tests
Torsion tests

Mechanical wear
See Wear

Mechanics
See Fluid mechanics

Mechanisms
Thermodynamic Consideration of Formation Mechanism of α_1 Plate in βCu-Base Alloys. (Conference Paper) 2555-2564A
Transformation Characteristics of α_1 Plates in Cu-Zn-Al Alloys. (Conference Paper) 2581-2599A
The Formation Mechanism of Plate in β Cu-Zn and Cu-Zn-Al Alloys. (Conference Paper) 2601-2608A
Growth Kinetics and High-Temperature TEM In Situ Observation of Bainite in a Cu-Zn Alloy. (Conference Paper) 2609-2614A
Study on the Transformation Mechanism of α_1 Plates in a Copper-Zinc-Aluminum Alloy. (Conference Paper) 2615-2619A
Mechanism of the Early Stages of α_1 Plate Formation in a Cu-39% Zinc Alloy. (Conference Paper) 2631-2637A
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A

Medium carbon steels, Heat treatment
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A

Medium carbon steels, Mechanical properties
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Medium carbon steels, Rolling
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A

Melt spinning
Calorimetric Evaluation of Nonequilibrium State in As-Melt Spun Al—1.72 and Al—3.12 at.% Cu Alloys and Al—6.74, Al—8.48, and Al—11.97 at.% Si Alloys. 1102-1104A
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A
Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Melting
See also Laser beam melting
Surface Tensions of Liquid Fe-Cr and Fe-Cr-N Alloys. 626-628B

Melting, Welding effects
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Melting points
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A

Melting points, Alloying effects
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Melting points, Temperature effects
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Melts
See also Liquid metals

Melts, Physical properties
Estimation of the Viscosities of Binary Metallic Melts Using Gibbs Energies of Mixing. 589-595B
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B

Memory (shape)
See Shape memory

Metal carbides
See Chromium carbide
Titanium carbide
Tungsten carbide

Metal inert gas welding
See Gas metal arc welding

Metal powders
See Alloy powders

Metal scrap, Recovering
Equilibrium Values for the Dissolution of Solid Copper Into FeS—Na_2S Mattes. 306-308B

Metal working
See Hot working
Thermomechanical treatment

Metallic compounds
See Intermetallics

Metallographic structures
See Microstructure

Metallography
See Crystallography

Metalloids
See Boron
Carbon
Germanium
Silicon

Metallurgical analysis
See Qualitative analysis
Sampling

Metallurgical constituents
See Ferrite
Laves phase

Metallurgy
See Powder metallurgy
Process metallurgy

Metals
See Dissimilar metals
Filler metal
Liquid metals

Metastable phases
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A

Metastable phases, Composition effects
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A

Metastable phases, Cooling effects
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A
Precipitation of BCC Phase from Nonequilibrium A13-Type Phase in Rapidly Solidified High-Carbon Fe-Cr-Mo Alloy. 2542-2546A

Metastable phases, Deformation effects
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A

Metastable phases, Diffusion effects
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A

Metastable phases, Heating effects
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Metastable phases, Temperature effects
Partition of Alloying Elements Between γ (A1), γ' ($L1_2$), and β (B2) Phases in Ni—Al Base Systems. 473-485A

Metathesis
See Decomposition reactions

Microbial leaching
See Bacterial leaching

Microcracking
See Crack initiation

Microhardness, Cooling effects
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A

Microhardness, Microstructural effects
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A

Microhardness, Pressure effects
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

Microhardness, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Microprobes
See Electron probes

Microscopy
See Electron microscopy

Microshrinkage
See Shrinkage

Microstructure
See also Amorphous structure
Crystal structure
Dislocation density
Grain size
Grain structure
Graphitic structure
Heterogeneous structure
Homogeneous structure
Lamellar structure
Spheroidal structure
Texture

Microstructure, Alloying effects
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Microstructure, Composition effects
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Microstructure, Cooling effects
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Microstructure, Deformation effects
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A

Microstructure, Heating effects
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A

Mig arc welding
See Gas metal arc welding

MIG welding
See Gas metal arc welding

Migration
See Diffusion

Mild carbon steels
See Low carbon steels

Mild steels
See Carbon steels

Mixing
See also Mechanical alloying
Backmixing in Channel Reactors With High-Strength Bottom Gas Injection. 619-623B

Mobility
See Dislocation mobility

Modulus of elasticity
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Modulus of elasticity, Composition effects
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Modulus of elasticity, Microstructural effects
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A

Modulus of elasticity, Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A

Modulus of elasticity, Temperature effects
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Modulus of rigidity
See Shear modulus

Modulus of shear
See Shear modulus

Modulus of torsion
See Shear modulus

Moistening
See Wetting

Moisture
See Water

Molten metals
See Liquid metals

Molybdenum, Alloying elements
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Molybdenum, Composite materials
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Molybdenum, Recovering
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Molybdenum chromium nickel steels
See Nickel chromium molybdenum steels

Molybdenum chromium steels
See Chromium molybdenum steels

Molybdenum compounds, Composite materials
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A

Molybdenum nickel chromium steels
See Nickel chromium molybdenum steels

Molybdenum steels
See also Chromium molybdenum steels

Molybdenum steels, Heat treatment
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A

Monel
See Nickel base alloys

Monocrystals
See Single crystals

Multiaxial stress
See Axial stress

Natural aging
See Aging (natural)

Near net shaping
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A

Necking, Stress effects
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A

Nickel, Alloying elements
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A

Nickel, Binary systems
Partition of Alloying Elements Between γ (A1), γ' ($L1_2$), and β (B2) Phases in Ni—Al Base Systems. 473-485A

Nickel, Composite materials
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A

Nickel, Microstructure
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A

Nickel, Phases (state of matter)
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A

Nickel, Physical properties
Sticking of Solids in Liquids. 397-403B

Nickel, Recovering
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Nickel, Refining
Physicochemical Properties of Nickel Electrolytes. 637-644B

Nickel, Sorption
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A

Nickel, Structural hardening
Diffusional Boundary Conditions During Coarsening of Elastically Interacting Precipitates. 2695-2703A

Nickel, Ternary systems
Thermodynamic Properties of Ternary Liquid Cu—Mg—Ni Alloys. 63-72B
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A

Nickel base alloys, Atomic properties
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A

Nickel base alloys, Casting
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A

Nickel base alloys, Claddings
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Nickel base alloys, Coating
Microstructural Evolution of an Overlay Coating on a Single-Crystal Nickel-Base Superalloy. 2837-2840A

Nickel base alloys, Composite materials
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B

Nickel base alloys, Corrosion
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A

Nickel base alloys, Extrusion
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A

Nickel base alloys, Heat treatment
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A

Nickel base alloys, Mechanical properties
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Nickel base alloys, Metal working
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Nickel base alloys, Microstructure
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A

Nickel base alloys, Oxidation
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B

Nickel base alloys, Phases (state of matter)
Triclinic Ni_2Al Phase in 63.1 at.% NiAl. 57-61A

Nickel base alloys, Reactions (chemical)
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B

Nickel base alloys, Structural hardening
Strain Hardening in Underaged Inconel 718. 653-656A

Nickel base alloys, Welding
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Nickel chromium molybdenum steels, Heat treatment
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A

Nickel chromium steels
See Nickel chromium molybdenum steels

Nickel compounds, Composite materials
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Nickel compounds, Extrusion
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Nickel compounds, Mechanical properties
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A
Creep Characteristics of Single Crystalline Ni_3Al(Ta,B). 2477-2482A
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Nickel compounds, Powder technology
Determination of Residual Nickel in Mechanically Alloyed NiAl. 871-874A
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A

Nickel compounds, Rolling
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A

Nickel molybdenum chromium steels
See Nickel chromium molybdenum steels

Nickel molybdenum steels
See Nickel chromium molybdenum steels

Nickel steels, Phases (state of matter)
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature (≤ 500°C) Fe—NI Phase Diagram. 1627-1637A
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures (≤ 400°C). 1639-1648A

Niobium, Alloying elements
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Effects of Austenite Grain Size and Cooling Rate on Widmanstatten Ferrite Formation in Low-Alloy Steels. 665-675A

Niobium, Composite materials
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A

Niobium compounds, Superconductivity
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Nitrogen, Alloying elements
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A

Nitrogen, Dopants
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Nodular graphitic structure, Stress effects
The Effect of Triaxial Stress on Ductility and Fracture Morphology of Ferritic Spheroidal Graphite Cast Iron. 821-825A

Nodular iron, Heat treatment
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A

Nodular iron, Mechanical properties
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A

Nodular iron, Microstructure
Chemical Composition and Structural Identification of Eutectic Carbide in 1% Manganese Ductile Iron. 911-918A

Nodules (graphite)
See Nodular graphitic structure

Nondestructive testing
See Ultrasonic testing

Nonferrous alloys
See Cobalt base alloys
Nickel base alloys
Zinc base alloys
Zirconium base alloys

Nonferrous metals
See Cobalt
Copper
Gallium
Indium
Manganese
Nickel
Yttrium
Zinc
Zirconium

Nonferrous smelting
See Smelting

Notch brittleness
See Brittleness

Notch ductility
See Ductility

Notch impact strength
See Impact strength

Notch impact tests
See Impact tests

Notched bar tensile test
See Tension tests

Notched bend test
See Bend tests

Nuclear fuels, Diffusion
Interdiffusion Between Uranium—Zirconium Fuel vs. Selected Cladding Steels. 1649-1653A

Nuclear reactor components, Irradiation
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Nuclear reactor components, Materials selection
Hydride Embrittlement in Zircaloy-4 Plate. II. Interaction Between the Tensile Stress and the Hydride Morphology. 1199-1208A

Nuclear reactor components, Mechanical properties
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Nucleation
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A
The Formation Mechanism of Plate in β Cu-Zn and Cu-Zn-Al Alloys. (Conference Paper) 2601-2608A

Nucleation, Alloying effects
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A

Nucleation, Cooling effects
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A

Nucleation, Deformation effects
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Nucleation, Heating effects
Titanium-Rich Mineral Phases and the Nucleation of Bainite. 1603-1611A
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A

Nucleation, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Nucleation, Temperature effects
Morphology of Bainite and Widmanstätten Ferrite. (Conference Paper) 1981-1989A

Nuclei (transformation)
See Nucleation

Numerical analysis
Diffusion-Controlled Growth in Ternary Systems. 2683-2694A
Numerical Analysis of the Rapid Solidification of Gas-Atomized Al-8 wt.% Iron Droplets. 2815-2826A

Order disorder
See also Long range order
Short range order
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A
Transformation Characteristics of α_1 Plates in Cu-Zn-Al Alloys. (Conference Paper) 2581-2599A

Order disorder, Composition effects
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A

Order disorder, Deformation effects
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A

Order disorder, Heating effects
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A

Order disorder, Temperature effects
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A

Ordered alloys
See Intermetallics

Ordering
See Order disorder

Ores
See Iron ores

Orientation
See Orientation relationships

Orientation relationships
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A
Mechanism of the Early Stages of α_1 Plate Formation in a Cu-39% Zinc Alloy. (Conference Paper) 2631-2637A
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A

Oxidation
Physical Modeling Studies of Electrolyte Flow Due to Gas Evolution and Some Aspects of Bubble Behavior in Advanced Hall Cells. II. Flow and Interpolar Resistance in Cells With a Grooved Anode. 341-349B
A Mathematical Model of Ionic Transport in a Porous Diaphragm of a Chrome—Alum Cell. 351-358B
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A

Oxidation, Composition effects
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Oxidation, Heating effects
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A

Oxidation, Pressure effects
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Oxidation, Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A

Oxidation, Temperature effects
Kinetics of Interlayer Formation on Polycrystalline α-Al_2O_3/Copper-Titanium Alloy Interface. 2083-2090A

Oxidation resistance, Composition effects
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Oxidation resistance, Temperature effects
Oxygen Potentials in Nickel + NiO and Nickel + Cr_2O_3 + $NiCr_2O_4$ Systems. 373-378B

Oxides
See also Aluminum oxide

Oxides, Phase transformations
Bainitelike Transformations in Some Oxide Ceramics. (Conference Paper) 2647-2653A

Oxidizing
See Oxidation

Oxygen, Alloying elements
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Oxygen, Quaternary systems
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Oxygen, Ternary systems
Thermodynamic Study of the Bi—Ca—O System. 97-101B

Oxygen compounds
See Oxides

Pack rolling, Pressure effects
Load-Signature Analysis for Pack Rolling of Near-Gamma Titanium Aluminide Alloys. 2539-2542A

Packet rolling
See Pack rolling

Packing (amorphous structure)
See Amorphous structure

Packing (crystal density)
See Crystal structure

Packing (liquid structure)
See Atomic structure

Parameters
See Lattice parameters
Welding parameters

Partial pressure
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1$, $0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A

Particulate composites, Casting
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A

Particulate composites, Fabrication
Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Particulate composites, Forging
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A

Particulate composites, Heat treatment
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Particulate composites, Joining
Kinetic Study of Low-Temperature Transient Liquid Phase Joining of an Aluminum-SiC Composite. 2705-2714A

Particulate composites, Mechanical properties
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A

Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Particulate composites, Oxidation
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A

Particulate composites, Phases (state of matter)
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B

Particulate composites, Powder technology
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A

Particulate composites, Structural hardening
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A

Particulate composites Structural hardening
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A

Passivation, Microstructural effects
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Pearlite
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Pearlite, Cooling effects
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A

Pearlite, Stress effects
Evaluation of Static and Dynamic Fracture Toughness in Ductile Cast Iron. 2427-2437A

Penetration, Temperature effects
Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A

Penrose tiling
See Quasicrystalline structure

Percolation
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A

Peritectic reactions
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A

Peritectic reactions, Cooling effects
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B

Permanent mold casting
See Die casting

Permeability, Heating effects
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A

Permeability, Temperature effects
Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A

Permeability (magnetic)
See Magnetic permeability

Permeation
See Penetration

Phase boundary
The Shapes of the Phase Boundaries of Two Ideal Solution Phases in Ternary and Higher Order Systems. 656-658A
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A

Phase boundary, Alloying effects
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Phase boundary, Diffusion effects
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A

Phase boundary, Heating effects
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A

Phase boundary, Temperature effects
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B

Phase decomposition
See also Spinodal decomposition
Multiphase Precipitation of Carbides in Fe-C Systems. I. Model Based Upon Simple Kinetic Reactions. 917-925B
Multiphase Precipitation of Carbides in Fe-C System. II. Model Based on Kinetics of Complex Reactions. 927-935B

Phase decomposition, Alloying effects
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Phase decomposition, Diffusion effects
Decomposition of Iron—Nickel Martensite: Implications for the Low-Temperature (≤ 500°C) Fe—Ni Phase Diagram. 1627-1637A

Phase decomposition, Low temperature effects
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures (≤ 400°C). 1639-1648A

Phase diagram reactions
See also Eutectic reactions
Eutectoid reactions
Martensitic transformations
Peritectic reactions
Phase decomposition

Phase diagram reactions, Deformation effects
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Phase diagram reactions, Heating effects
Interfacial Layer Development in Hot-Dip Galvanneal Coatings on Interstitial Free (IF) Steel. 2101-2109A

Phase stability
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Phase stability, Alloying effects
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A

Phase stability, Deformation effects
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Phase stability, Diffusion effects
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A

Phase stability, Heating effects
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Phase stability, Temperature effects
Partition of Alloying Elements Between γ (A1), γ' ($L1_2$), and β (B2) Phases in Ni—Al Base Systems. 473-485A
Improved Thermochemical Calculations for Maraging Steels and Comparison With Atom Probe Measurement of Phase Composition. 2538-2539A

Phase structure
See Solid phases

Phase transformations
See also Allotropic transformation
Martensitic transformations
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$. 47-56A
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A
Titanium-Rich Mineral Phases and the Nucleation of Bainite. 1603-1611A
Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A
Thermodynamic Consideration of Formation Mechanism of α_1 Plate in βCu-Base Alloys. (Conference Paper) 2555-2564A
Transformation Characteristics of α_1 Plates in Cu-Zn-Al Alloys. (Conference Paper) 2581-2599A
The Formation Mechanism of Plate in β Cu-Zn and Cu-Zn-Al Alloys. (Conference Paper) 2601-2608A
Growth Kinetics and High-Temperature TEM In Situ Observation of Bainite in a Cu-Zn Alloy. (Conference Paper) 2609-2614A
Study on the Transformation Mechanism of α_1 Plates in a Copper-Zinc-Aluminum Alloy. (Conference Paper) 2615-2619A
A Discussion on the Formation of Bainite and Other Precipitates in Copper-Zinc and Silver-Zinc Alloys. (Conference Paper) 2621-2629A
Mechanism of the Early Stages of α_1 Plate Formation in a Cu-39% Zinc Alloy. (Conference Paper) 2631-2637A
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A
Bainitelike Transformations in Some Oxide Ceramics. (Conference Paper) 2647-2653A
General Discussion Session of the Pacific Rim Conference on the Roles of Shear and Diffusion in the Formation of Plate-Shaped Transformation Products. (Conference Paper) 2655-2673A
Diffusion-Controlled Growth in Ternary Systems. 2683-2694A

Phase transformations, Alloying effects
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A

On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A
The Influence of the Alloying Elements Upon the Transformation Kinetics and Morphologies of Ferrite Plates in Alloy Steels. (Conference Paper) 1991-2000A

Phase transformations, Cooling effects
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Calorimetric Evaluation of Nonequilibrium State in As-Melt Spun Al—1.72 and Al—3.12 at.% Cu Alloys and Al—6.74, Al—8.48, and Al—11.97 at.% Si Alloys. 1102-1104A
Microsegregation in Cellular Solidification. 2295-2301A

Phase transformations, Deformation effects
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Phase transformations, Diffusion effects
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
A Comparison Between Three Simple Crystallographic Principles of Precipitate Morphology. (Conference Paper) 1857-1863A
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A
Diffusion in Growth of Bainite. (Conference Paper) 1957-1966A
Formation Mechanism of Bainitic Ferrite in an Fe)2% Si)0.6% C Alloy. (Conference Paper) 2009-2016A

Phase transformations, Stress effects
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Phase transformations, Temperature effects
Behavior of Steels Near the Incipient Melting Temperature. 125-133A
Thermodynamic Predictions for Material Processing in a Plasma Reactor Using Solid Oxide Feed Materials. 713-720B
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A

Phases (state of matter)
See also Intermetallic phases
Liquid phases
Metastable phases
Solid phases
Vapor phases
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
Kinetics in Muliticomponent Metallic)Ionic Systems. 579-587B
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. I. On the Determination of Interdiffusion Coefficients. 741-751A
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A
The Chromium Equivalents of Selected Elements in Austenitic Stainless Steel. 2675-2681A

Phases (state of matter), Alloying effects
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A

Phases (state of matter), Heating effects
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A

Phases (state of matter), Pressure effects
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Phases (state of matter), Temperature effects
Thermodynamic Study of the Bi—Ca—O System. 97-101B
Local Melting in Al—Mg—Zn—Alloys. 521-530A
The Grand Partition Function of Dilute Biregular Solutions. 703-711B
Kinetics of Interlayer Formation on Polycrystalline α-Al_2O_3/Copper-Titanium Alloy Interface. 2083-2090A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A

Phases (state of matter), Welding effects
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A

Photo oxidation
See Oxidation

Photodecomposition
See Decomposition reactions

Photoelectron spectroscopy
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A

Photoemission spectroscopy
See Photoelectron spectroscopy

Physical chemistry
Solid-Solution Formation Between Arsenic and Antimony Oxides. 865-871B
Thermal Separation of Arsenic and Antimony Oxides. 873-884B

Physical properties
See Anisotropy
Buoyancy
Capillarity
Density
Diffusivity
Permeability
Porosity
Solubility
Surface tension

Pipe, Casting
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B

Pitting potential
See Corrosion potential

Plasma arc plating
See Plasma spraying

Plasma arc spraying
See Plasma spraying

Plasma jet spraying
See Plasma spraying

Plasma processing
See also Plasma spraying
Thermodynamic Predictions for Material Processing in a Plasma Reactor Using Solid Oxide Feed Materials. 713-720B

Plasma spraying
Microstructural Evolution of an Overlay Coating on a Single-Crystal Nickel-Base Superalloy. 2837-2840A

Plastic deformation
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Plastic deformation, Environmental effects
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A

Plastic deformation, Pressure effects
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

Plastic deformation, Stress effects
Analysis of Thermally Induced Stress and Strain in Continuous Fiber-Reinforced Composites. 415-425A
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Plastic strain
See Plastic deformation

Plasticity
See also Superplasticity

Plasticity, Composition effects
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A

Plasticity, Deformation effects
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A

Plasticity, High temperature effects
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A

Plasticity, Microstructural effects
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A

Plasticity, Stress effects
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A
Hydride Embrittlement in Zircaloy-4 Plate. II. Interaction Between the Tensile Stress and the Hydride Morphology. 1199-1208A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Plasticity stress effects
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A

Plate metal, Casting
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B

Plate metal, Heat treatment
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A

Plate metal, Mechanical properties
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A

Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A

Platinum
Thermodynamic Stability of Metallurgical Coke Relative to Graphite. 149-151B

Platinum metals
See Platinum

Plutonium, Binary systems
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Point defects
See Lattice vacancies

Poissons ratio
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Poissons ratio, Temperature effects
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Poling
See Deoxidizing

Polygonization
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A

Pores
See Porosity

Porosity
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A

Porosity, Coating effects
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Porosity, Cooling effects
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B

Porosity, Diffusion effects
Determination of Pore Mobility During Sintering. 81-87A

Porosity, Heating effects
Effect of Supereutectic Homogenization on Incidence of Porosity in Aluminum Alloy 2014 Ingot. 111-122B

Porosity, Welding effects
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Porosity stress effects
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A

Potential (electric)
See Electric potential

Pots (electrolytic)
See Electrolytic cells

Powder blending
Mechanical Processing of Iron Powders in Reactive and Non-reactive Gas Atmospheres. 381-388A

Powder metallurgy
See also Sintering (powder metallurgy)
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Powder metallurgy parts, Metal working
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Powder technology
See also Atomizing
Powder metallurgy
The Injection of Solids Using a Reactive Carrier Gas. 653-660B

Praseodymium base alloys, Phases (state of matter)
Standard Enthalpies of Formation of Some Praseodymium Alloys of High-Temperature Direct Synthesis Calorimetry. 73-77B

Precious metal alloys
See Gold base alloys
Silver base alloys

Precious metals
See Gold
Silver

Precipitates, Diffusion effects
A Comparison Between Three Simple Crystallographic Principles of Precipitate Morphology. (Conference Paper) 1857-1863A

Precipitation
See also Intergranular precipitation
Sedimentation
Triclinic Ni_3Al Phase in 63.1 at.% NiAl. 57-61A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Multiphase Precipitation of Carbides in Fe-C Systems. I. Model Based Upon Simple Kinetic Reactions. 917-925B
Multiphase Precipitation of Carbides in Fe-C System. II. Model Based on Kinetics of Complex Reactions. 927-935B
Intrinsic Ledges at Interphase Boundaries and the Crystallography of Precipitate Plates. (Conference Paper) 1905-1915A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A
Long-Range Ordering in the Early Stages of Precipitation)a Brief Review. (Conference Paper) 2565-2568A
A Discussion on the Formation of Bainite and Other Precipitates in Copper-Zinc and Silver-Zinc Alloys. (Conference Paper) 2621-2629A
The Selection of Precipitate Habit Planes in Cr-32 wt.% Ni. (Conference Paper) 2639-2646A

Precipitation, Alloying effects
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Thermodynamics and Kinetics of the Formation of Widmanstatten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
The Fine Structure and Formation Mechanism of Lower Bainite. (Conference Paper) 1967-1980A

Precipitation, Cooling effects
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Precipitation of BCC Phase from Nonequilibrium A13-Type Phase in Rapidly Solidified High-Carbon Fe-Cr-Mo Alloy. 2542-2546A

Precipitation, Diffusion effects
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A
Atomic Site Correspondence and Surface Relief in the Formation of Plate-Shaped Transformation Products. (Conference Paper) 1917-1922A

Precipitation, Heating effects
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A
Formation Mechanism of Bainite Ferrite and Carbide. (Conference Paper) 2001-2007A
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A

Precipitation, Low temperature effects
Numerical Modeling of γ Precipitate Growth During Fe—Ni Martensite Decomposition at Low Temperatures ($\leq$ 400°C). 1639-1648A

Precipitation, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Precipitation, Stress effects
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A

Precipitation, Temperature effects
Morphology of Bainite and Widmanstätten Ferrite. (Conference Paper) 1981-1989A
Improved Thermochemical Calculations for Maraging Steels and Comparison With Atom Probe Measurement of Phase Composition. 2538-2539A

Precipitation, Welding effects
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Precipitation hardening
Diffusional Boundary Conditions During Coarsening of Elastically Interacting Precipitates. 2695-2703A

Precipitation hardening alloys
See Precipitation hardening steels

Precipitation hardening steels
See also Maraging steels

Precipitation hardening steels, Heat treatment
Heat Treatment of Investment Cast PH 13-8 Molybdenum Stainless Steel. II. Isothermal Aging Kinetics. 697-704A

Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A

Precision casting
See Investment casting

Preferential attack (corrosion)
See Intergranular corrosion

Preforming
Thermofluid Analysis and Design of a Low-Temperature Preforming Process. 761-771B

Pressure
See Partial pressure
Vacuum

Pressure casting
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A

Pressure castings, Oxidation
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A

Pressure die casting
See Die casting

Pressure molding
See Injection molding

Pressure vessels, Irradiation
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Pressure welding
See Diffusion welding

Primary displacements
See Displacements (lattice)

Process control
A Simple but Realistic Model for Laser Cladding. 281-291B
Slurry Filtration and Cake Washing After the HCl-Leach of Magnesite and Serpentine—Continuous Washing Model. 321-331B
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B

Process metallurgy
See also Extractive metallurgy
The Role of Chemical Metallurgy in the Emerging Field of Materials Science and Engineering. (Review) 789-816B

Propagation
See Crack propagation

Properzi process
See Continuous casting

Protective coatings, Heat treatment
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A

Protective coatings, Microstructure
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B

Pseudoelasticity, Stress effects
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A

Puddling
See Ironmaking

Pulse echo technique
See Ultrasonic testing

Punching
Effects of Texture Gradients on Yield Loci and Forming Limit Diagrams in Various Aluminum-Lithium Sheet Alloys. 2783-2795A

Purification
Thermal Separation of Arsenic and Antimony Oxides. 873-884B
Thermodynamics of Boron in a Silicon Melt. 903-907B

Pyroceram
See Ceramics

Pyrometallurgy
Vanadium Distribution in Melts Intermediate to Ferroalloy Production From Vanadiferous Slag. 27-32B
Thermodynamics and Phase Relations of the Fe—O—S—SiO_2(sat) System at 1200°C and the Effect of Copper. 79-89B
Thermodynamic Stability of Metallurgical Coke Relative to Graphite. 149-151B
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B
Physical and Mathematical Modeling of Pyrometallurgical Channel Reactors With Bottom Gas Injection. Residence Time Distribution Analysis and Ideal-Reactor-Network Model. 207-219B
A Process for Debismuthizing Lead With Magnesium. 379-384B
Equilibrium Oxygen Pressures of Iron Silicate Slags. 463-465B
The Ferric Fluosilicate Leaching of Lead Concentrates. I. Kinetic Studies. 473-480B
Thermodynamic Simulation Model of the Isasmelt Process for Copper Matte. 839-853B

Qualitative analysis
Sulfur Determination in Carbon-Saturated Iron by Solid-State Electrochemical Sensor. 561-568B

Quasicrystalline structure
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$. 47-56A
Discussion of "Crystallographic Characterization of the Al-Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$". 2535-2538A

Quasicrystalline structure, Heating effects
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A

Quaternary systems, Phases (state of matter)
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Quench bend tests
See Bend tests

Quenching (cooling)
See also Quenching and tempering
Water quenching
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
Multiphase Precipitation of Carbides in Fe-C Systems. I. Model Based Upon Simple Kinetic Reactions. 917-925B
Multiphase Precipitation of Carbides in Fe-C System. II. Model Based on Kinetics of Complex Reactions. 927-935B
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A

Quenching and tempering
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A

Quenching stresses
See Residual stress

Radiation damage
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

Radioactive decay, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Radioactive disintegration
See Radioactive decay

Radiocrystallography
See Crystallography

Raney nickel
See Catalysts

Rapid solidification
Formation of Metastable and Equilibrium Phases During Mechanical Alloying of Aluminum and Magnesium Powders. 73-79A
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A
The Cast Structure of a 7075 Alloy Produced by a Water-Cooling Centrifugal Casting Method. 643-650A
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A
Calorimetric Evaluation of Nonequilibrium State in As-Melt Spun Al—1.72 and Al—3.12 at.% Cu Alloys and Al—6.74, Al—8.48, and Al—11.97 at.% Si Alloys. 1102-1104A
Cubic AlNi Compound Dispersed Magnesium-Based Amorphous Matrix Composites Prepared by Rapid Solidification. 1323-1325A
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A
Precipitation of BCC Phase from Nonequilibrium A13-Type Phase in Rapidly Solidified High-Carbon Fe-Cr-Mo Alloy. 2542-2546A
Numerical Analysis of the Rapid Solidification of Gas-Atomized Al-8 wt.% Iron Droplets. 2815-2826A

Rare earth alloys
See Praseodymium base alloys

Rare earth metals
See Ytterbium

Rare gases
See Helium

Rates
See Cooling rate
Strain rate
Wear rate

Ratios
See Poissons ratio

Reaction entropy
See Entropy

Reaction kinetics
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B

Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B
Kinetics in Multicomponent Metallic)Ionic Systems. 579-587B

Reaction kinetics, Pressure effects
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Reactions (chemical)
See also Blast furnace chemistry
Combustion
Decomposition reactions
Deoxidizing
Dephosphorizing
Dissolution
Electrolysis
Hydrogenation
Interface reactions
Oxidation
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B

Reactions (nuclear)
See Radioactive decay
Thermonuclear reactions

Reactivity
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A

Reactivity (chemical)
See Activity (chemical)

Reactor fuels
See Nuclear fuels

Reclamation
See Recycling

Recrystallization
See also Grain refinement
Effect of Internal Heating During Hot Compression on the Stress-Strain Behavior of Alloy 304L. 2737-2752A

Recrystallization, Cooling effects
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A

Recrystallization, Deformation effects
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A
Microstructure Development During Conventional and Isothermal Hot Forging of a Near-γ Titanium Aluminide. 2753-2768A

Recrystallization, Heating effects
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A

Recrystallization, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Recrystallization, Temperature effects
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Recrystallization, Welding effects
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Recycling
Equilibrium Values for the Dissolution of Solid Copper Into FeS—Na_2S Mattes. 306-308B
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Red hardness
See Hardness

Red shortness
See Brittleness

Reduction
See Reduction (chemical)
Reduction (electrolytic)

Reduction (chemical)
See also Deoxidizing
Cyanide Inhibitors for the Carbon Cathode Materials in Aluminum Reduction Cells. 221-226B
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
Reduction of Chromite in Liquid Fe)Cr)C)Si Alloys. 549-559B

Reduction (electrolytic)
See also Electrowinning
Small Cell Experiments for Electrolytic Reduction of Uranium Oxides to Uranium Metal Using Fluoride Salts. 505-518B

Reduction of area, Environmental effects
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Reduction of area, Microstructural effects
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A

Reduction of area, Stress effects
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A

Refining
See Electrorefining

Refractory alloys
See Chromium base alloys
Tungsten base alloys

Refractory metal compounds
See Chromium compounds
Molybdenum compounds
Niobium compounds
Vanadium compounds

Refractory metals
See Chromium
Molybdenum
Niobium
Tantalum
Tungsten
Vanadium

Relaxation
See Stress relaxation

Remelting
See Melting

Replicast process
See Investment casting

Residual stress
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A
Estimation of Interfacial Shear Strength Between Superconducting Oxides and Silver Sheath From Multiple-Fracture Phenomenon of the Oxide. 349-356A
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A
Hydride Embrittlement in Zircaloy-4 Plate. II. Interaction Between the Tensile Stress and the Hydride Morphology. 1199-1208A
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A

Resistance
See Corrosion resistance

Resistance spot welding
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B

Resistance welding
See Resistance spot welding

Resistance welds
See Welded joints

Resistivity
Physicochemical Properties of Nickel Electrolytes. 637-644B

Resistivity, Heating effects
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A

Resistivity, Microstructural effects
Role of Al_2O_3 Particulate Reinforcements on Precipitation in 2014 Aluminum-Matrix Composites. 1591-1602A

Resistivity, Temperature effects
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A

Resonance testing
See Ultrasonic testing

Rheocasting
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A

Rheological properties
See Viscoplasticity
Viscosity

Risers
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A

Roasting
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B
An Analysis of Slag Stratification in Nickel Laterite Smelting Furnaces Due to Composition and Temperature Gradients. 491-496B

Roll spot welding
See Resistance spot welding

Rolling
See Cold rolling
Hot rolling

Roughing (rolling)
See Hot rolling

Roughness, Heating effects
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B

Rupture strength
See Creep rupture strength

Sampling
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A

Sand casting
See Green sand casting

Sap process
See Dispersion hardening

Scattering
See also Backscattering
X ray scattering
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A

Schottky defect
See Lattice vacancies

Scrap
See Metal scrap

Scrap metal
See Metal scrap

Scratch tests
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Screw dislocations, Stress effects
A Simplified Method of Calculating the Stress Field at the Tip of a Discrete Dislocation Pileup in a Finite Crystal. 223-225A

Season cracking
See Stress corrosion cracking

Secondary displacements
See Displacements (lattice)

Sedimentation
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B

Seeding
See Nucleation

Segregation process
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B

Segregations
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B

Segregations, Alloying effects
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Segregations, Cooling effects
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
Chemical Composition and Structural Identification of Eutectic Carbide in 1% Manganese Ductile Iron. 911-918A
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A
Microsegregation in Cellular Solidification. 2295-2301A
Undercooling-Induced Macrosegregation in Directional Solidification. 2507-2516A

Segregations, Heating effects
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
Phosphorus and Carbon Segregation: Effects on Fatigue and Fracture of Gas-Carburized Modified 4320 Steel. 1229-1240A

Segregations, Stress effects
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Segregations, Temperature effects
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B

Self diffusion
See Diffusion

Semiconductors
See Germanium
Silicon

Semicontinuous casting
See Continuous casting

Semikilling
See Deoxidizing

Sensible heat
See Enthalpy

Sensitizing
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A

Sensors, Phases (state of matter)
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A

Separation
See Segregation process

Shape memory, Alloying effects
Effects of Carbon Content and Ausaging on $\gamma \rightleftarrows \alpha'$ Transformation Behavior and Reverse-Transformed Structure in Fe—Ni—Co—Al—C Alloys. 63-71A

Shape memory, Stress effects
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Shaping
See Near net shaping

Shear bands
See Slip planes

Shear modulus
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Shear modulus, Temperature effects
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Shear properties
See also Shear modulus
Shear strength
Shear stress

Shear properties, Deformation effects
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A

Shear strength, High temperature effects
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Shear strength, Stress effects
Estimation of Interfacial Shear Strength Between Superconducting Oxides and Silver Sheath From Multiple-Fracture Phenomenon of the Oxide. 349-356A

Shear stress
Evaluation of Homogeneous Compression Flow Curves Using Square Cross-Sectioned Specimens. 1095-1097A
Fiber Strength and Fiber/Matrix Bond Strength in Single Crystal Al_2O_3 Fiber Reinforced Ni_3Al Based Composites. 1259-1265A
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Shear stress, Microstructural effects
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Sheaths, Mechanical properties
Estimation of Interfacial Shear Strength Between Superconducting Oxides and Silver Sheath From Multiple-Fracture Phenomenon of the Oxide. 349-356A

Sheet metal
See also Foil

Sheet metal, Coating
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A

Sheet metal, Metal working
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A
A Plane Strain Punch Stretching Test for Evaluating Stamping Formability of Steel Sheets. 2199-2205A

Sheet metal, Reactions (chemical)
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Sheet metal, Rolling
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A

Sheet metal, Welding
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B

Sheet steel
See Strip steel

Sherritt Gordon process
See Hydrometallurgy
Powder technology

Shielded arc welding
See Gas metal arc welding

Short arc welding
See Gas metal arc welding

Short range order
Determination of the Short-Range Order Structure of Au—25 at.% Fe Using Wide-Angle Diffuse Synchrotron X-Ray Scattering. 1561-1573A

Short range order, Heating effects
Aging of Freshly Formed Iron-Based Martensites at Low Temperatures. (Review) 889-909A

Shrinkage, Cooling effects
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B

Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
Modeling of the Formation of Under-Riser Macrosegregation During Solidification of Binary Alloys. 1051-1062A

Shrinkage, Heating effects
Effect of Supereutectic Homogenization on Incidence of Porosity in Aluminum Alloy 2014 Ingot. 111-122B

Sigma hard facing
See Gas metal arc welding

Sigma phase, Temperature effects
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A

Sigma welding
See Gas metal arc welding

Silicides, Composite materials
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
The Effect of Niobium Morphology on the Cyclic Oxidation Resistance of $MoSi_2$/20 vol.% Niobium Composites. 1033-1040A

Silicides, Mechanical properties
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Silicon, Extraction
Chemical Equilibria Between Silicon and Slag Melts. 497-504B

Silicon, Refining
Thermodynamics of Boron in a Silicon Melt. 903-907B

Silicon carbide, Composite materials
Phase Relations in the Mo—Si—C System Relevant to the Processing of $MoSi_2$—SiC Composites. 5-15A
Modeling of the Incorporation of Ceramic Particulates in Metallic Droplets During Spray Atomization and Coinjection. 135-147B
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A
Kinetic Study of Low-Temperature Transient Liquid Phase Joining of an Aluminum-SiC Composite. 2705-2714A
Elastic Constants of SiC_p/Al: Measurements and Modeling. 2832-2835A

Silicon carbide, Welding
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Silicon compounds
See Silicides
Silicon carbide

Silver, Extraction
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B

Silver, Mechanical properties
Estimation of Interfacial Shear Strength Between Superconducting Oxides and Silver Sheath From Multiple-Fracture Phenomenon of the Oxide. 349-356A

Silver, Ternary systems
The Grand Partition Function of Dilute Biregular Solutions. 703-711B

Silver base alloys, Microstructure
High-Resolution Analytical Electron Microscopy Study of Isothermal Plate-Shaped Products in Some β-Phase Alloys. (Conference Paper) 2569-2579A

Silver base alloys, Phase transformations
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A
A Discussion on the Formation of Bainite and Other Precipitates in Copper-Zinc and Silver-Zinc Alloys. (Conference Paper) 2621-2629A

Simulation
See Computer simulation

Single crystals, Coating
Microstructural Evolution of an Overlay Coating on a Single-Crystal Nickel-Base Superalloy. 2837-2840A

Sintering
See Sintering (powder metallurgy)

Sintering (powder metallurgy)
See also Liquid phase sintering
Determination of Pore Mobility During Sintering. 81-87A
Modeling of Mechanical Alloying. I. Deformation, Coalescence, and Fragmentation Mechanisms. 147-158A
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
High-Performance Ni_3Al Synthesized From Composite Powders. 985-992A

Slab casting
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B
Water-Modeling Study of the Surface Disturbances in Continuous Slab Caster. 227-233B
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Simulation of Argon Gas Flow Effects in a Continuous Slab Caster. 527-547B

Slags
See also Blast furnace slags
Equilibrium Distribution of Fe, Ni, Sb, and Sn between Liquid Cu and a CaO-Rich Slag. 645-651B
Modeling of Metallurgical Emulsions. 855-864B
Activities of Fe_tO in CaO-Al_2O_3-SiO_2-Fe_tO (5%) Slags Saturated With Liquid Iron. 893-902B
Densities of Liquid Fe-Ni and Fe-Cr Alloys. 939-942B

Slags, Reactions (chemical)
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B

Sliding friction, Microstructural effects
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A

Sling casting
See Centrifugal casting

Slip
See also Slip planes

Slip, Deformation effects
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Slip, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Slip bands
See Slip planes

Slip planes
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Smelting
Vanadium Distribution in Melts Intermediate to Ferroalloy Production From Vanadiferous Slag. 27-32B
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
Physical and Mathematical Modeling of Pyrometallurgical Channel Reactors With Bottom Gas Injection. Residence Time Distribution Analysis and Ideal-Reactor-Network Model. 207-219B
Equilibrium Oxygen Pressures of Iron Silicate Slags. 463-465B
The Ferric Fluosilicate Leaching of Lead Concentrates. I. Kinetic Studies. 473-480B
An Analysis of Slag Stratification in Nickel Laterite Smelting Furnaces Due to Composition and Temperature Gradients. 491-496B
Modeling of Metallurgical Emulsions. 855-864B

Smelting, Pressure effects
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Soft annealing
See Annealing

Soft solders
See Solders

Solar cells
See Solar generators

Solar generators
Thermodynamics of Boron in a Silicon Melt. 903-907B

Soldered joints, Coating
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Soldered joints, Mechanical properties
The Effect of Substrate on the Microstructure and Creep of Eutectic Indium-Tin. 2715-2722A

Solders
The Effect of Substrate on the Microstructure and Creep of Eutectic Indium-Tin. 2715-2722A

Solid phases
The Measurement of the Heat-Transfer Coefficient Between High-Temperature Liquids and Solid Surfaces. 43-51B
An Empirical Correlation Between Contact Angles and Surface Tension in Some Ceramic—Metal Systems. 225-230A
Sticking of Solids in Liquids. 397-403B

X-Ray Microscopic Observations of Metal Solidification Dynamics. 1775-1777A

Solid phases, Alloying effects
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Solid phases, Cooling effects
Further Discussions on the Solute Redistribution During Dendritic Solidification of Binary Alloys. 731-739B
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A
Microsegregation in Cellular Solidification. 2295-2301A
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A

Solid phases, Diffusion effects
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A

Solid phases, Heating effects
Mechanism of Damping Capacity of High-Chromium Steels and α-Iron and Its Dependence on Some External Factors. 111-124A
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Solid phases, Temperature effects
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Solid solutions
Solid-Solution Formation Between Arsenic and Antimony Oxides. 865-871B

Solidification
See also Directional solidification
Rapid solidification
Effect of Supereutectic Homogenization on Incidence of Porosity in Aluminum Alloy 2014 Ingot. 111-122B
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B
Modeling Microstructure Development in Gray Cast Irons. 1063-1079A
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A
Solidification Macrostructures and Macrosegregation in Aluminum Alloys Cooled From Above. 1097-1102A
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A
X-Ray Microscopic Observations of Metal Solidification Dynamics. 1775-1777A
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Solidification, Cooling effects
Crystallization Behavior of Iron-Containing Intermetallic Compounds in 319 Aluminum Alloy. 1761-1773A
Microsegregation in Cellular Solidification. 2295-2301A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A

Solidification, Temperature effects
An Internal Variable Description of Solidification Suitable for Macrosegregation Modeling. 597-605B
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A

Solidification, Welding effects
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Solubility
Thermodynamics and Phase Relations of the Fe—O—S—SiO_2(sat) System at 1200°C and the Effect of Copper. 79-89B
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B

Solubility, Alloying effects
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A

Solubility, Temperature effects
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B

Solubility, Welding effects
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Solution entropy
See Entropy
Heat of solution

Solution heat treatment
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Solution potential
See Corrosion potential

Solutions
See Solid solutions

Sorption
See Absorption (material)
Adsorption
Desorption

Space lattices
See Crystal lattices

Specific density
See Density

Specific gravity
See Density

Specific heat, Cooling effects
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B

Specific heat, Temperature effects
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B

Specific resistance
See Resistivity

Specific volume
See Density

Specific weight
See Density

Spelter
See Zinc

Spheroidal graphite
See Nodular graphitic structure

Spheroidal iron
See Nodular iron

Spheroidal structure
See also Nodular graphitic structure

Spheroidal structure, Cooling effects
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A

Spheroidal structure, Heating effects
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A

Spheroidal structure, High temperature effects
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Spheroidizing
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A
The Role of Magnesium-Containing Spheroidizer and Counteraction of Misch Metal in the Intermediate Temperature Intergranular Embrittlement of Ferritic Nodular Iron. 2305-2309A
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Spheroids
See Spheroidal structure

Spin casting
See Centrifugal casting

Spinodal decomposition, Cooling effects
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A

Spinodal decomposition, Deformation effects
Effects of Precursor Matrix Events on Subsequent Nucleation. (Conference Paper) 1933-1939A

Splicing
See Joining

Sponginess
See Porosity

Spot welding
See Resistance spot welding

Sprayed coatings, Microstructure
Microstructural Evolution of an Overlay Coating on a Single-Crystal Nickel-Base Superalloy. 2837-2840A

Stability
See Phase stability
Thermal stability

Stacking faults
The Formation Mechanism of Plate in β Cu-Zn and Cu-Zn-Al Alloys. (Conference Paper) 2601-2608A
Study on the Transformation Mechanism of α_1 Plates in a Copper-Zinc-Aluminum Alloy. (Conference Paper) 2615-2619A

Stacking faults, Diffusion effects
Application of the Theory of Martensite Crystallography to Displacive Phase Transformations in Substitutional Nonferrous Alloys. (Conference Paper, Review) 1841-1856A

Stacking faults, Heating effects
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A

Stainless steels
See also Austenitic stainless steels
Ferritic stainless steels
Martensitic stainless steels

Stainless steels, Phase transformations
The Invariant Line and Precipitate Morphology in FCC-BCC Systems. (Conference Paper) 1865-1874A

Stainless steels, Physical properties
Surface Tensions of Liquid Fe-Cr and Fe-Cr-N Alloys. 626-628B

Stainless steels, Steel making
Reduction of Chromite in Liquid Fe)Cr)C)Si Alloys. 549-559B
A Thermodynamic Study of BaO + $BaCl_2$ + Cr_2O_3 Fluxes Used for the Removal of Phosphorus From Chromium-Containing Iron Melts. 695-701B

Stamping
A Plane Strain Punch Stretching Test for Evaluating Stamping Formability of Steel Sheets. 2199-2205A

Static fatigue
See Creep rupture strength

Static loads
See Loads (forces)

Static pressure
See Hydrostatic pressure

Steel constituents
See Austenite
Bainite
Cementite
Martensite
Pearlite
Sigma phase

Steel converters
See Top blown converters

Steel making
Calcium Deoxidation Equilibrium in Liquid Iron. 33-42B
High-Temperature Isopiestic Studies on the Ternary Slag PbO—SiO_2—B_2O_3 at 1273K. 103-109B
Physical and Mathematical Modeling of Pyrometallurgical Channel Reactors With Bottom Gas Injection. Residence Time Distribution Analysis and Ideal-Reactor-Network Model. 207-219B
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B
A Comparison of Three Mathematical Modeling Procedures for Simulating Fluid Flow Phenomena in Bubble-Stirred Ladles. 308-312B
Large-Scale Measurements of the Physical Characteristics of Round Vertical Bubble Plumes in Liquids. 359-371B
Backmixing in Channel Reactors With High-Strength Bottom Gas Injection. 619-623B
The Injection of Solids Using a Reactive Carrier Gas. 653-660B
Critical Fluid-Flow Phenomenon in a Gas-Stirred Ladle. 681-693B
Measurements of High-Temperature Viscosities of Liquid Boron Trioxide. 876-881A
Activities of Fe_tO in CaO-Al_2O_3-SiO_2-Fe_tO (5%) Slags Saturated With Liquid Iron. 893-902B
Densities of Liquid Fe-Ni and Fe-Cr Alloys. 939-942B

Steels
See also Carbon steels
Dual phase steels
Galvanized steels
Structural steels

Steels, Casting
On the Formation of Pipes and Centerline Segregates in Continuously Cast Billets. 123-133B
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B
Water-Modeling Study of the Surface Disturbances in Continuous Slab Caster. 227-233B
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B
Simulation of Argon Gas Flow Effects in a Continuous Slab Caster. 527-547B

Steels, Coating
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A

Steels, Heat treatment
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A

Steels, Mechanical properties
Elastic Compliance and Hill's Quadratic Yield Function for Weakly Orthotropic Sheets of Cubic Metals. 2835-2837A

Steels, Metal working
A Plane Strain Punch Stretching Test for Evaluating Stamping Formability of Steel Sheets. 2199-2205A

Steels, Metallography
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A

Steels, Phase transformations
Diffusion-Controlled Growth in Ternary Systems. 2683-2694A

Steels, Phases (state of matter)
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
Morphology of Bainite and Widmanstätten Ferrite. (Conference Paper) 1981-1989A

Steels, Recovering
Equilibrium Values for the Dissolution of Solid Copper Into FeS—Na_2S Mattes. 306-308B

Steels, Welding
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B

Stibium
See Antimony

Stiffness, Heating effects
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Stiffness, Microstructural effects
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A

Stiffness, Stress effects
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A

Stirring
See also Electromagnetic stirring
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B

Strain
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A
η to G Phase Transformation in Electrodeposited Iron—Zinc Alloy Coatings. 1119-1125A
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
A Plane Strain Punch Stretching Test for Evaluating Stamping Formability of Steel Sheets. 2199-2205A

Strain, Diffusion effects
A Comparison Between Three Simple Crystallographic Principles of Precipitate Morphology. (Conference Paper) 1857-1863A

Strain, Heating effects
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Strain, High temperature effects
Low-Cycle Fatigue Behavior of Polycrystalline NiAl at 1000K. 309-319A
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A

Strain, Microstructural effects
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Strain, Microstructure
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A

Strain, Stress effects
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A

Strain aging, High temperature effects
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A

Strain aging, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Strain hardening
Strain Hardening in Underaged Inconel 718. 653-656A
The Effect of Inertia on Tensile Ductility. 2723-2735A

Strain hardening, Heating effects
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Strain hardening, Microstructural effects
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Strain hardening, Stress effects
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A

Strain rate
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A

Factors Influencing the Exceptional Ductility of a Superplastic Pb-62% Sn Alloy. 2309-2311A
The Effect of Inertia on Tensile Ductility. 2723-2735A
Effect of Internal Heating During Hot Compression on the Stress-Strain Behavior of Alloy 304L. 2737-2752A

Strain rate, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Strain rate, Cooling effects
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A
Evolution of Interaction Domain Microstructure During Spray Deposition. 2341-2355A

Strain rate, Deformation effects
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Strain rate, Environmental effects
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Strain rate, High temperature effects
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A

Strain rate, Microstructural effects
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A
The Study of Adiabatic Shear Band Instability in a Pearlitic 4340 Steel Using a Dynamic Punch Test. 2483-2489A

Strain rate, Stress effects
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A
Low Cycle Fatigue Behavior of Polycrystalline Ni_3Al Alloys at Ambient and Elevated Temperatures. 2469-2476A

Strain rate, Temperature effects
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Strain rate stress effects
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A

Stress aging
See Strain aging

Stress concentration
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. II. Theory. 811-819A

Stress corrosion cracking
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A

Stress corrosion cracking, Diffusion effects
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

Stress corrosion cracking, Heating effects
Applicability of Bond Percolation Theory to Intergranular Stress-Corrosion Cracking of Sensitized AISI 304 Stainless Steel. 775-787A

Stress corrosion resistance
See Corrosion resistance

Stress cycle
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A

Stress distribution
See Stress concentration

Stress intensity
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A
Fracture of Glass in Tensile and Bending Tests. 961-968A
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A
Evaluation of Homogeneous Compression Flow Curves Using Square Cross-Sectioned Specimens. 1095-1097A
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A
Mixed-Mode I and II Fatigue Threshold and Crack Closure in Dual-Phase Steels. 1713-1723A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A
Short Fatigue Crack Growth Behavior in a Ferritic-Bainitic Steel. 2421-2425A
The Influence of SiC Particulates on Fatigue Crack Propagation in a Rapidly Solidified Al-Fe-V-Si Alloy. 2453-2460A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A
Creep Characteristics of Single Crystalline $Ni_3Al(Ta,B)$. 2477-2482A

Stress relaxation, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Stress rupture strength
See Creep rupture strength

Stress strain curves
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Estimation of Interfacial Shear Strength Between Superconducting Oxides and Silver Sheath From Multiple-Fracture Phenomenon of the Oxide. 349-356A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A
Low-Cycle Fatigue of Dispersion-Strengthened Copper. 2235-2245A
Effect of Internal Heating During Hot Compression on the Stress-Strain Behavior of Alloy 304L. 2737-2752A

Stresses
See Axial stress
Residual stress
Stress intensity
Tensile stress
Thermal stresses

Stretching
Effects of Texture Gradients on Yield Loci and Forming Limit Diagrams in Various Aluminum-Lithium Sheet Alloys. 2783-2795A

Strip
See Strip steel

Strip steel, Heat treatment
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B

Structural hardening
See Dispersion hardening
Precipitation hardening
Strain hardening

Structural materials
See Structural steels

Structural steels, Mechanical properties
Evaluation of Homogeneous Compression Flow Curves Using Square Cross-Sectioned Specimens. 1095-1097A

Structure (atomic)
See Atomic structure

Structures (crystalline)
See Crystal structure
Grain structure
Macrostructure
Microstructure

Submerged arc welds
See Welded joints

Suction
See Vacuum

Sulfur, Chemical analysis
Sulfur Determination in Carbon-Saturated Iron by Solid-State Electrochemical Sensor. 561-568B

Sulfur, Ternary systems
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B

Sulphur
See Sulfur

Superalloys, Casting
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A

Superalloys, Cladding
A Simple but Realistic Model for Laser Cladding. 281-291B

Superalloys, Coating
Microstructural Evolution of an Overlay Coating on a Single-Crystal Nickel-Base Superalloy. 2837-2840A

Superalloys, Extrusion
Discussion of "The Distribution of Dispersoid Phases in the Extruded ODS Superalloy MA-957 and Reply. 651-653A

Superalloys, Heat treatment
Hydrogen Permeation Behavior in IN718 and GH761 Superalloys. 539-544A

Superalloys, Mechanical properties
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Effect of Orientation on Crystallographic Cracking in Notched Nickel-Base Superalloy Single Crystal Subjected to Far-Field Cyclic Compression. 287-297A
On Morphologies, Microsegregation, and Mechanical Behavior of Directionally Solidified Cobalt-Base Superalloy at Medium Cooling Rate. 637-642A
Characterization of Mechanically Alloyed Oxide Dispersion-Strengthened Nickel-Base Superalloy MA760. 705-714A
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A

Superalloys, Metal working
Microstructural Control in Hot Working of IN-718 Superalloy Using Processing Map. 2275-2284A

Superalloys, Structural hardening
Strain Hardening in Underaged Inconel 718. 653-656A
Diffusional Boundary Conditions During Coarsening of Elastically Interacting Precipitates. 2695-2703A

Superalloys, Welding
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Superconductors
Directional Phase Formation on Melting via Peritectic Reaction. 1747-1760A

Superconductors, Microstructure
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Superconductors, Phases (state of matter)
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Supercooling
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
The Velocity of Solidification of Highly Undercooled Nickel. 1301-1308A
Nonequilibrium Solidification of Undercooled Melt of Ag-Cu Alloy Entrained in the Primary Phase. 2517-2523A
Numerical Analysis of the Rapid Solidification of Gas-Atomized Al-8 wt.% Iron Droplets. 2815-2826A

Superplastic forming
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Superplasticity
Factors Influencing the Exceptional Ductility of a Superplastic Pb-62% Sn Alloy. 2309-2311A

Superplasticity, Deformation effects
Superplastic Behavior of Two Ultrahigh Boron Steels. 1241-1248A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Superplasticity, Microstructural effects
Discussion of "Grain Growth of a Superplastic 7475 Aluminum Alloy". 221-223A

Superplasticity, Stress effects
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Surface analysis (chemical)
See Depth profiling

Surface chemistry
Adsorption Kinetics of Dicyanoaurate and Dicyanoargentate Ions in Activated Carbon. 185-191B
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B

Surface chemistry, Alloying effects
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Surface chemistry, Composition effects
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Surface chemistry, Diffusion effects
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A

Surface chemistry, Environmental effects
Modeling Hydrogen Entry and Exit in Metals Exposed to Multiple Charging Processes. 723-732A

Surface chemistry, Heating effects
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A

Surface chemistry, Microstructural effects
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A

Surface chemistry, Pressure effects
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Surface chemistry, Radiation effects
Gas Trapping and Release in Polycrystalline Nickel Preimplanted With Helium. 949-959A

Surface defects
Water-Modeling Study of the Surface Disturbances in Continuous Slab Caster. 227-233B

Surface defects, Stress effects
Fracture of Glass in Tensile and Bending Tests. 961-968A

Surface diffusion
See Diffusion

Surface energy
An Empirical Correlation Between Contact Angles and Surface Tension in Some Ceramic—Metal Systems. 225-230A

Surface hardening
See also Laser beam hardening
Depth of Melt-Pool and Heat-Affected Zone in Laser Surface Treatments. 427-435A

Surface hardness, Radiation effects
Effects of Simultaneous Boron and Nitrogen Implantation on Microhardness and Fatigue Properties of Fe—13Cr—15Ni Alloys. 193-202A

Surface properties
See Emissivity
Roughness
Surface structure
Surface tension
Wetting

Surface roughness
See Roughness

Surface structure
The Diffuse-Scattering Method for Investigating Locally Ordered Binary Solid Solutions. 17-35A
Structure of As-Deposited Iron—Zinc Coatings From Chloride Bath. 249-255A
A Simple but Realistic Model for Laser Cladding. 281-291B
Surface Characterization and Reactivity of a Nitrogen Atomized 304L Stainless Steel Powder. 509-520A
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A
Nanocrystalline Iron Sintering Behavior and Microstructural Development. 677-685A
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B
Efficient Measurement of Microstructural Surface Area Using Trisector. 919-928A
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A
Influence of Near-Surface Microstructures on the Transient Current Response in Fe—Cr—Ni Alloys During Scratch Tests. 1325-1331A
X-Ray Microscopic Observations of Metal Solidification Dynamics. 1775-1777A
The Phenomenological Theory of Martensite Crystallography: Interrelationships. (Conference Paper) 1787-1795A
Ledges and Dislocations in Phase Transformations. (Conference Paper) 1885-1894A
The Role of Structural Ledges as Misfit-Compensating Defects: FCC-BCC Interphase Boundaries. (Conference Paper) 1895-1903A
Spreading and Interlayer Formation at the Copper-Copper Oxide/Polycrystalline Alumina Interface. 2497-2506A

Surface structure, Alloying effects
Morphological Stability of γ/α Interface Formed by Carburization in Fe—C—X Alloys. 531-537A

Surface structure, Coating effects
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Surface structure, Composition effects
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Surface structure, Cooling effects
Natural Convection in an Aluminum Ingot: a Mathematical Model. 293-302B
Three-Dimensional Simulation of the Grain Formation in Investment Castings. 629-635A
Fatigue Crack Growth Rates and Fracture Toughness of Rapidly Solidified Al—8.5Fe—1.2V—1.7Si Alloys. 1005-1014A

Surface structure, Diffusion effects
Crystallographic Theories, Interface Structures, and Transformation Mechanisms. (Conference Paper) 1821-1839A
On the Role of Interphase-Boundary Structure in Plate Growth by Diffusional Mechanisms. (Conference Paper) 1875-1883A

Formation of Invariant Plane-Strain and Tent-Shaped Surface Reliefs by the Diffusional Ledge Mechanism. (Conference Paper) 1923-1931A

Surface structure, Heating effects
Atom Probe Field Ion Microscopy Study of the Partitioning of Substitutional Elements During Tempering of a Low-Alloy Steel Martensite. 499-508A
The Effect of Phosphorus Segregation on the Intermediate-Temperature Embrittlement of Ferritic, Spheroidal Graphite Cast Iron. 557-561A
Morphology Development in Hot-Dip Galvanneal Coatings. 937-947A
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Surface structure, Welding effects
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A

Surface tension
An Empirical Correlation Between Contact Angles and Surface Tension in Some Ceramic—Metal Systems. 225-230A
Sticking of Solids in Liquids. 397-403B
Surface Tensions of Liquid Fe-Cr and Fe-Cr-N Alloys. 626-628B
Physicochemical Properties of Nickel Electrolytes. 637-644B

Susceptibility (magnetic)
See Magnetic permeability

Synthesis, Temperature effects
Thermodynamic Estimation of ΔH_f^o for $CaGa_2$ Intermetallic. 151-154B

Systems (metallurgical)
See Binary systems
Quaternary systems
Ternary systems

Tanks (electrolytic)
See Electrolytic cells

Tantalum, Binary systems
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Tantalum, Mechanical properties
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A

Tear strength, High temperature effects
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A

Temperature
See Curie temperature
High temperature

Tempering
See also Quenching and tempering
Atom Probe Field Ion Microscopy Study of the Partitioning of Substitutional Elements During Tempering of a Low-Alloy Steel Martensite. 499-508A
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Isothermal Formation of Quasicrystalline Precipitates and Their Effect on Strength in a 12Cr-9Ni-4Mo Maraging Stainless Steel. 2225-2233A

Tenacity
See Tensile strength

Tensile modulus
See Modulus of elasticity

Tensile properties
See Elongation
Necking
Reduction of area
Tensile strength
Yield strength

Tensile shear strength
See Shear strength

Tensile strength, Composition effects
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Tensile strength, Cooling effects
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A

Tensile strength, Environmental effects
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Tensile strength, Heating effects
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Heat Treatment of Investment Cast PH 13-8Mo Stainless Steel. I. Mechanical Properties and Microstructure. 789-798A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Tensile strength, Microstructural effects
Fracture and the Formation of Sigma Phase, $M_{23}C_6$, and Austenite From Delta—Ferrite in an AISI 304L Stainless Steel. 1147-1158A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A

Tensile strength, Stress effects
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A

Tensile stress
Behavior of Steels Near the Incipient Melting Temperature. 125-133A
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A
A Simplified Method of Calculating the Stress Field at the Tip of a Discrete Dislocation Pileup in a Finite Crystal. 223-225A
Characteristics of the Martensitic Transformation and the Induced Two-Way Shape Memory Effect After Training by Compressive Pseudoelastic Cycling in Cu—Zn—Al Single Crystals. 687-695A
Fracture of Glass in Tensile and Bending Tests. 961-968A
Hydride Embrittlement in Zircaloy-4 Plate. II. Interaction Between the Tensile Stress and the Hydride Morphology. 1199-1208A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Forging Limits for an Aluminum Matrix Composite. I. Experimental Results. (Conference Paper) 2027-2038A
Forging Limit for an Aluminum Matrix Composite. II. Analysis. (Conference Paper) 2039-2048A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A

Tensile tests
See Tension tests

Tensile yield strength
See Yield strength

Tension impact tests
See Impact tests

Tension tests
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A
Fracture of Glass in Tensile and Bending Tests. 961-968A
The Effect of Inertia on Tensile Ductility. 2723-2735A

Ternary systems
Thermodynamic Properties of Ternary Liquid Cu—Mg—Ni Alloys. 63-72B

Ternary systems, Phase transformations
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A
Diffusion-Controlled Growth in Ternary Systems. 2683-2694A

Ternary systems, Phases (state of matter)
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Thermodynamic Study of the Bi—Ca—O System. 97-101B
Crystallization Studies of the β' (Mg_2Pb) Phase and Its Phase Boundaries in the Pb—Mg—Bi System. 255-263B
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
The Grand Partition Function of Dilute Biregular Solutions. 703-711B
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1$, $0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A
Thermodynamic Analysis of the In-Ga-Sb System. 2331-2340A

Tertiary displacements
See Displacements (lattice)

Texture
The Orientation Dependence of Fatigue-Crack Growth in 8090 Aluminum—Lithium Plate. 575-588A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
Effects of Texture Gradients on Yield Loci and Forming Limit Diagrams in Various Aluminum-Lithium Sheet Alloys. 2783-2795A

Texture, Deformation effects
Anisotropic Plastic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. 1209-1216A
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A
Discussion of "The Role of Microstructure on Strength and Ductility of Hot-Extruded Mechanically Alloyed NiAl" and Author's Reply. 2303-2305A

Texture, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Texture, Stress effects
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A

Thawing
See Melting

Thermal capacity
See Specific heat

Thermal conductivity
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B

Thermal conductivity, Cooling effects
A Note on the Sensitivity of Solidification Models to Thermophysical Properties. 154-157B

Thermal conductivity, Temperature effects
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B

Thermal expansion, Stress effects
Coefficients of Thermal Expansion of Metal-Matrix Composites for Electronic Packaging. 839-850A

Thermal fatigue, Deformation effects
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B

Thermal fatigue, Stress effects
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A

Thermal fatigue, Temperature effects
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A

Thermal flux
See Heat transmission

Thermal properties
See Emissivity
Melting points
Specific heat
Thermal conductivity
Thermal expansion
Thermal stability
Vapor pressure

Thermal reduction
See Fluidized bed reduction
Smelting

Thermal resistivity
See Thermal conductivity

Thermal spraying
See Plasma spraying

Thermal stability, Alloying effects
Elevated-Temperature Stability of Mechanically Alloyed Copper-Niobium Powders. 2091-2099A

Thermal stability, Composition effects
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Thermal stability, Microstructural effects
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A

Thermal stability, Temperature effects
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A

Thermal stresses
Effect of Strain Rate on the High-Temperature Low-Cycle Fatigue Properties of a Nimonic PE-16 Superalloy. 159-171A
Analysis of Thermally Induced Stress and Strain in Continuous Fiber-Reinforced Composites. 415-425A
Cleavage Initiation in the Intercritically Reheated Coarse-Grained Heat-Affected Zone: I. Fractographic Evidence. 563-573A
On Low-Temperature Environment-Assisted Fatigue Crack Propagation. 658-659A
Transformation, Microcrack, and Thermal Residual Stress as Interactive Processes in ZrO_2-Toughened Al_2O_3, Simulated by the Finite Element Method. 1725-1731A
Modeling Creep Deformation of a Two-Phase $TiAl/Ti_3Al$ Alloy With a Lamellar Microstructure. 2161-2171A

Thermochemistry
Improved Thermochemical Calculations for Maraging Steels and Comparison With Atom Probe Measurement of Phase Composition. 2538-2539A

Thermodynamics
See also Enthalpy
Entropy
Free energy
Calcium Deoxidation Equilibrium in Liquid Iron. 33-42B
High-Temperature Phase Relations and Thermodynamics in the Iron—Lead—Sulfur System. 53-61B
Thermodynamics and Phase Relations of the Fe—O—S—SiO_2(sat) System at 1200°C and the Effect of Copper. 79-89B
Gradient Solid Electrolytes for Thermodynamic Measurements: System Na_2CO_3—Na_2SO_4. 173-180A
Thermodynamics of Oxygen, Nitrogen, and Sulfur in Liquid Iron Equilibrated With CaO—Al_2O_3—MgO Slags. 235-244B
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B
Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A
Thermodynamic Simulation Model of the Isasmelt Process for Copper Matte. 839-853B
Thermodynamics of the Liquid |xCu + yAu + (1—x—y)Ge|, ($0.75 \leq x \leq 1, 0 \leq y \leq 0.125$) Alloys at 1550K by Knudsen Effusion Mass Spectrometry. 857-864A
Thermal Separation of Arsenic and Antimony Oxides. 873-884B
A Thermodynamic Study of the Molybdenum-Oxygen System. 885-891B
Thermodynamics of Boron in a Silicon Melt. 903-907B
Calculation of Thermophysical Properties of Carbon and Low Alloyed Steels for Modeling of Solidification Processes. 909-916B
Intragranular Ferrite Nucleation in Medium-Carbon Vanadium Steels. 929-936A
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A
Numerical Modeling of Solidification and Subsequent Transformation of Fe—Cr—Ni Alloys. 1309-1321A
Thermodynamics and Kinetics of the Formation of Widmanstätten Ferrite Plates in Ferrous Alloys. (Conference Paper) 1947-1953A
Thermodynamic Consideration of Formation Mechanism of α_1 Plate in βCu-Base Alloys. (Conference Paper) 2555-2564A
The Chromium Equivalents of Selected Elements in Austenitic Stainless Steel. 2675-2681A
Diffusion-Controlled Growth in Ternary Systems. 2683-2694A
Thermodynamics and Long-Range Order of Interstitials in a Hexagonal Close-Packed Lattice. 2797-2814A

Thermoelastic properties
See also Shape memory

Thermoelastic properties, Microstructural effects
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. II. Dislocation Arrangements. 407-413A

Thermoelastic properties, Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Some Aspects of Thermomechanical Fatigue of AISI 304L Stainless Steel. I. Creep—Fatigue Damage. 401-406A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Thermomechanical properties
See Thermoelastic properties

Thermomechanical treatment
Compositional and Microstructural Changes Which Attend Reheating and Grain Coarsening in Steels Containing Niobium. 277-286A
Superplastic Behavior of Thermomechanically Treated P/M 7091 Aluminum Alloy. 2153-2160A

Thermonuclear reactions, Radiation effects
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A

Thermostability
See Thermal stability

Thin films, Phases (state of matter)
The Morphological Stability of Lateral Growth in Solid—Solid Phase Transformation During Thin-Film Interdiffusion in Aluminum/Copper Bimetal Films. 1613-1625A

Tig arc welding
See Gas tungsten arc welding

TIG welding
See Gas tungsten arc welding

Time temperature transformation curves
See TTT curves

Tin, Microstructure
Characterization of Inhomogeneous Elastic Deformation With X-Ray Diffraction. 341-347A

Tin, Physical properties
Sticking of Solids in Liquids. 397-403B

Tin, Soldering
The Effect of Low Gold Concentrations on the Creep of Eutectic Tin—Lead Joints. 1249-1257A

Tin base alloys, Casting
Prediction of Columnar to Equiaxed Transition During Diffusion-Controlled Dendritic Alloy Solidification. 1081-1093A

Tin base alloys, Mechanical properties
Factors Influencing the Exceptional Ductility of a Superplastic Pb-62% Sn Alloy. 2309-2311A

Tin compounds, Superconductivity
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Titanium, Alloying elements
Thermodynamics of Oxygen and Nitrogen in Liquid Nickel Equilibrated With CaO—TiO_x and CaO—TiO_x—Al_2O_3 Melts. 5-13B
Effects of Austenite Grain Size and Cooling Rate on Widmanstätten Ferrite Formation in Low-Alloy Steels. 665-675A
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Titanium, Diffusion
Anomalous Diffusion of Aluminum in β-Titanium. 873-876A

Titanium base alloys
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Titanium base alloys, Coating
The Influence of Laser Glazing on Fatigue Crack Growth in Ti—24Al—11Nb. 183-192A

Titanium base alloys, Composite materials
Microstructural Study of the Titanium Alloy Ti—15Mo—2.7Nb—3Al—0.2Si (TIMETAL 21S). 1109-1118A
Comparison of Orthorhombic and Alpha-Two Titanium Aluminides as Matrices for Continuous SiC-Reinforced Composites. 1267-1283A
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A

Titanium base alloys, Diffusion
A History of the Controversy Over the Roles of Shear and Diffusion in Plate Formation Above M_d and a Comparison of the Atomic Mechanisms of These Processes. (Conference Paper, Review) 1797-1819A

Titanium base alloys, Heat treatment
The Effect of Thermal Exposure on Microstructural Stability and Creep Resistance of a Two-Phase TiAl/Ti_3Al Lamellar Alloy. 2371-2381A

Titanium base alloys, Mechanical properties
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Dynamic Fracture Behavior of Ti—6Al—4V Alloy With Various Stabilities of β Phase. 1655-1666A
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A
Modeling the Effects of Stress State and Crystal Orientation on the Stress-Induced Transformation of NiTi Single Crystals. 2383-2389A

Titanium base alloys, Metal working
Relationships of Slip Morphology, Microcracking, and Fracture Resistance in a Lamellar TiAl-Alloy. 1217-1228A

Titanium base alloys, Oxidation
Auger Electron Analysis of the Initial Oxidation of Titanium Aluminides Based on Ti—48Al. 1041-1050A

Titanium base alloys, Powder technology
Microstructure and Sound Velocity of Ti-N-O Synthetic Inclusions in Ti-6Al-4V. 2321-2329A

Titanium base alloys, Reactions (chemical)
High-Temperature Oxidation of Cathodically Hydrogen-Charged Two-Phase (Ti_3Al, TiAl) Titanium Aluminides. 2491-2496A

Titanium base alloys, Rolling
A Simple Model for Conventional Hot Rolling of Sheet Materials. 1681-1692A
Load-Signature Analysis for Pack Rolling of Near-Gamma Titanium Aluminide Alloys. 2539-2542A

Titanium base alloys, Sorption
Barrier-Layer Formation and Its Control During Hydrogen Permeation Through Ti—24Al—11Nb Alloy. 89-97A

Titanium base alloys, Welding
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A

Titanium carbide, Composite materials
Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Titanium compounds
See also Titanium carbide

Titanium compounds, Forging
Microstructure Development During Conventional and Isothermal Hot Forging of a Near-γ Titanium Aluminide. 2753-2768A

Titanium compounds, Mechanical properties
Tensile Ductility of Extrinsically Toughened Intermetallics. 299-308A
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A
Ordering and Mechanical Strength in $L1_2$ Cubic Titanium Trialuminides. 449-451A
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A
Modeling Creep Deformation of a Two-Phase TiAl/Ti_3Al Alloy With a Lamellar Microstructure. 2161-2171A

Top blown converters
Backmixing in Channel Reactors With High-Strength Bottom Gas Injection. 619-623B

Torsion tests
Softening and Microstructural Change Following the Dynamic Recrystallization of Austenite. 389-400A

Torsional modulus
See Shear modulus

Torsional strength
See Shear strength

Total heat
See Enthalpy

Toughness
See also Fracture toughness

Toughness, Alloying effects
Microstructures and Mechanial Behavior of NiAl-Mo and NiAl-Mo-Ti Two-Phase Alloys. 2769-2781A

Toughness, Cooling effects
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A

Toughness, Heating effects
Development and Characterization of Interface Coatings in Molybdenum-Reinforced NiAl Matrix Composites. 2111-2116A

Toughness, Microstructure
The Elastic Strain Energy of Growth Ledges on Coherent and Partially Coherent Precipitates. 2073-2082A

Transformation entropy
See Entropy

Transformations (materials)
See Phase transformations

Transgranular fracture, Heating effects
Fracture Toughness of Quaternary Al-Li-Cu-Mg Alloy Under Mode I, Mode II, and Mode III Loading Conditions. 2439-2452A

Transition metal alloys
See Cobalt base alloys
Copper base alloys
Ferrous alloys
Nickel base alloys
Titanium base alloys
Zinc base alloys
Zirconium base alloys

Transition metal compounds
See Cobalt compounds
Iron compounds
Nickel compounds
Titanium compounds
Zinc compounds

Transition metals
See Cobalt
Copper
Iron
Manganese
Nickel
Titanium
Yttrium
Zinc
Zirconium

Transmission
See Heat transmission

Transmission electron microscopy
Transmission Electron Microscopy Study of Martensites in Laser-Clad Ni—Al Bronze on Aluminium Alloy AA333. 37-46A
Transmission Electron Microscopy Crystal Structure Study of the Chromium-Rich Phase in a Laser-Clad Nickel Alloy. 487-497A
Al_2Ti Precipitation in $Al_{64}Fe_8Ti_{28}$ Alloy. 715-721A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A

Transuranium metals
See Plutonium

Triaxial stress
See Axial stress

Tritium, Diffusion
Tritium Distribution at the Crack Tip of High-Strength Steels Submitted to Stress Corrosion Cracking. 1159-1167A

Tritium, Dopants
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Microstructural Study of Helium Bubble Precipitation. 2117-2130A
Helium 3 Precipitation in AISI 316L Stainless Steel Induced by Radioactive Decay of Tritium: Growth Mechanism of Helium Bubbles. 2131-2143A

TTT curves
Bainitelike Transformations in Some Oxide Ceramics. (Conference Paper) 2647-2653A

Tubular goods
See Pipe

Tundishes
Mathematical and Physical Modeling Studies of Molten Aluminum Flow in a Tundish. 669-680B

Tungsten, Composite materials
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B

Tungsten, Powder technology
Determination of Pore Mobility During Sintering. 81-87A

Tungsten arc welding
See Gas tungsten arc welding

Tungsten base alloys, Heat treatment
The Cause of Matrix Penetration of W/W Grain Boundaries During Heat Treatment of W-Ni-Fe Heavy Alloy. 2828-2831A

Tungsten base alloys, Powder technology
Effect of Cobalt Addition on the Liquid-Phase Sintering of Tungsten—Copper Prepared by the Fluidized Bed Reduction Method. 1575-1578A

Tungsten carbide, Composite materials
Thermodynamics of Isolated Pores Filling With Liquid in Sintered Composite Materials. 733-740A

Tungsten compounds
See Tungsten carbide

Tungsten inert gas welding
See Gas tungsten arc welding

Turbine blades, Microstructure
The Effect of Enhanced Gravity Levels on Microstructural Development in Pb—50 wt.% Sn Alloys During Controlled Directional Solidification. 865-870A

Turbines
See Gas turbine engines

Turbojet engines, Materials selection
Investigation of the Kinetics of Reduction of Nickel Tungstate by Hydrogen. 391-396B

Twinning
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant τ^2-$Al_{13}Co_4$. 47-56A
Triclinic Ni_2Al Phase in 63.1 at.% NiAl. 57-61A
Strain Hardening in Underaged Inconel 718. 653-656A

Ultimate shear strength
See Shear strength

Ultimate tensile strength
See Tensile strength

Ultrasonic testing
Characterization of Anisotropic Elastic Constants of Silicon-Carbide Particulate Reinforced Aluminum Metal Matrix Composites. I. Experiment. 799-809A

Ultraviolet photoelectron spectroscopy
See Photoelectron spectroscopy

Undercooling
See Supercooling

Uranium, Extraction
Small Cell Experiments for Electrolytic Reduction of Uranium Oxides to Uranium Metal Using Fluoride Salts. 505-518B

Uranium, Reactions (chemical)
Simulation of In Situ Uraninite Leaching. I. A Partial Equilibrium Model of the NH_4HCO_3—$(NH_4)_2CO_3$—H_2O_2 Leaching System. 171-183B

Uranium base alloys, Diffusion
Interdiffusion Between Uranium—Zirconium Fuel vs. Selected Cladding Steels. 1649-1653A

V notch Charpy impact tests
See Impact tests

V notch Charpy tests
See Impact tests

Vacancies (crystal defects)
See Lattice vacancies

Vacancies (lattice)
See Lattice vacancies

Vacuum, Environment
Environmental Effect on Room-Temperature Ductility of Isothermally Forged TiAl-Base Alloys. 321-330A

Vacuum annealing
A Structural Study of Oxidation in a Zirconia-Toughened Alumina Fiber-Reinforced NiAl Composite. 1291-1299A

Vanadium, Alloying elements
Influence of Tempering Temperature on Stability of Carbide Phases in 2.6Cr—0.7Mo—0.3V Steel With Various Carbon Content. 267-275A

Vanadium, Binary systems
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Vanadium, Recovering
Vanadium Distribution in Melts Intermediate to Ferroalloy Production From Vanadiferous Slag. 27-32B
Processing of Spent Hydrorefining Catalysts by Selective Chlorination. 481-490B

Vanadium compounds, Mechanical properties
Elastic Constants of Some Transition-Metal-Disilicide Single Crystals. 331-340A

Vapor phases
An Empirical Correlation Between Contact Angles and Surface Tension in Some Ceramic—Metal Systems. 225-230A

Vapor pressure
Kinetics of the Reaction of H_2O Gas With Liquid Iron. 245-253B

Vapors
See Water vapor

Vessels
See Pressure vessels

Vickers hardness
See Diamond pyramid hardness

Viscoplasticity, Deformation effects
Modeling the Thin-Slab Continuous-Casting Mold. 443-457B

Viscoplasticity, Stress effects
Micromechanical Modelling of Reinforcement Fracture in Particle-Reinforced Metal-Matrix Composites. 2403-2420A

Viscosity
Observations on the Effect of Medium Density and Viscosity on the Rate of Induced Aeration in Agitated Vessels. 303-306B
Sticking of Solids in Liquids. 397-403B
A Model for Estimation of Viscosities of Complex Metallic and Ionic Melts. 519-525B
A Two-Phase Flow Model of the Stirring of Al)SiC Composite Melt. 607-618B
Physicochemical Properties of Nickel Electrolytes. 637-644B
Measurements of High-Temperature Viscosities of Liquid Boron Trioxide. 876-881A

Viscosity, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A

Viscosity, Temperature effects
Estimation of the Viscosities of Binary Metallic Melts Using Gibbs Energies of Mixing. 589-595B

Voids, Deformation effects
Alligatoring and Damage in the Cold Rolling of Spheroidized Steels. 589-598A

Voids, Heating effects
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Voids, Stress effects
Creep and Intergranular Cracking of Ni—Cr—Fe—C in 360°C Argon. 1169-1183A
Thermal-Mechanical Fatigue of Ti-48Al-2V Alloy and Its Composite. 2207-2212A
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A

Voltage
See Electric potential

Voltage drop
See Electric potential

Washing
Slurry Filtration and Cake Washing After the HCl-Leach of Magnesite and Serpentine—Continuous Washing Model. 321-331B

Water, Reactions (chemical)
Interactions Between Drops of a Molten Aluminum)Lithium Alloy and Liquid Water. 623-625B

Water quenching
Microstructure and Mechanical Properties of Ti—40 wt.% Ta (Ti—15 at.% Ta). 461-472A
Local Melting in Al—Mg—Zn—Alloys. 521-530A
Interstitial Precipitation in Fe—Cr—Al Alloys. 1135-1146A
The Cause of Matrix Penetration of W/W Grain Boundaries During Heat Treatment of W-Ni-Fe Heavy Alloy. 2828-2831A

Water vapor, Environment
Embrittlement of B2 Iron Aluminide by Water Vapor and by Hydrogen. 1285-1290A

Wear
See also Abrasive wear
Frictional wear

Wear, Stress effects
Fracture Toughness of Discontinuously Reinforced Al-4Cu-1.5Mg/TiB_2 Composites. 2461-2468A

Wear rate, Microstructural effects
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A

Wear resistance, Coating effects
Processing, Microstructure, and Properties of Laser-Clad Nickel Alloy FP-5 on Al Alloy AA333. 425-434B

Wear resistance, Heating effects
The Effect of Aging on Wear Characteristics of Rheocast-Leaded Aluminum Alloys. 851-856A

Wear resistance, Microstructural effects
Effect of Microstructure (Particulate Size and Volume Fraction) and Counterface Material on the Sliding Wear Resistance of Particulate-Reinforced Aluminum Matrix Composites. 969-983A

Weathering steels
See Structural steels

Weld defects
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Weldability
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B

Welded joints, Heat treatment
Computer Simulation of Diffusion in Multiphase Systems. 1127-1134A

Welded joints, Microstructure
The α/β Interface Phase in Titanium Alloys: Artifact or Real Phase Contribution to Problem Resolution. 241-248A

Welded joints, Phases (state of matter)
Characterization of a Diffusion-Bonded Al—Mg Alloy/SiC Interface by High Resolution and Analytical Electron Microscopy. 617-627A
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Welded joints, Physical properties
Effect of Welding Variables and Solidification Substructure on Weld Metal Porosity. 2285-2294A

Welded joints, Thermal properties
Three-Dimensional Finite Element Modeling of Gas Metal-Arc Welding. 435-441B

Welding parameters
Resistance Spot Welding of Precoated Steel Sheet: Computational Heat-Transfer Analysis. 415-423B
The Influence of Electron-Beam Welding Parameters on Heat-Affected-Zone Microfissuring in Incoloy 903. 1733-1745A

Welds
See Welded joints

Wetting
An Empirical Correlation Between Contact Angles and Surface Tension in Some Ceramic—Metal Systems. 225-230A

Experimental Study of the Influence of Interfacial Energies and Reactivity on Wetting in Metal/Oxide Systems. 599-605A
Capillarity in Isothermal Infiltration of Alumina Fiber Preforms With Aluminum. 2145-2152A
Modelling the Infiltration Kinetics of Molten Aluminum Into Porous Titanium Carbide. 2357-2370A

Wetting, Alloying effects
Solid-State Wetting of Graphite by Lead and Pb—Ni Alloys. 607-615A

Wetting, Temperature effects
Kinetics of Interlayer Formation on Polycrystalline α-Al_2O_3/Copper-Titanium Alloy Interface. 2083-2090A

Whisker composites, Powder technology
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A
Low-Cycle Fatigue Properties of a SiC Whisker-Reinforced 2124 Aluminum Alloy. 2265-2274A

White metal (copper matte)
See Copper mattes

Wolfram
See Tungsten

Work hardening
See Strain hardening

Work strengthening
See Strain hardening

Workability
See also Formability

Workability, High temperature effects
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Wustite, Reduction (chemical)
Surface Segregation of Calcium Oxide in Wustite and Its Effects on the Reduction. 405-413B
Improvement in the Reducibility of Wustite Assisted by the Intensified Surface Segregation of Calcium Ions by the Double Addition of CaO and SiO_2. 741-748B

X ray analysis
See X ray diffraction

X ray diffraction
Crystallographic Characteristics of the Al—Co Decagonal Quasicrystal and Its Monoclinic Approximant γ^2-$Al_{13}Co_4$. 47-56A

X ray diffractometer
See X ray diffraction

X ray photoelectron spectroscopy
See Photoelectron spectroscopy

X ray scattering
Determination of the Short-Range Order Structure of Au—25 at.% Fe Using Wide-Angle Diffuse Synchrotron X-Ray Scattering. 1561-1573A

Yield strain
See Strain

Yield strength, Composition effects
The Effects of Hydrogen on the Mechanical Behavior of Austenitic Stainless Steels at Room Temperature. 1015-1023A
Room-Temperature Strength and Deformation of TiB_2-Reinforced Near-γ Titanium Aluminides. 2181-2197A
Melt-Processed Ni_3Al Matrix Composites Reinforced With TiC Particles. 2525-2534A

Yield strength, Cooling effects
Effects of Widmanstätten Ferrite on the Mechanical Properties of a 0.2% C—0.7% Mn Steel. 763-773A

Yield strength, Deformation effects
The Tensile Deformation Behavior of AA 3004 Aluminum Alloy. 357-364A
Hot Deformation Characteristics of INCONEL Alloy MA 754 and Development of a Processing Map. 1693-1702A
High-Temperature Deformation of B2 NiAl-Base Alloys. (Conference Paper) 2017-2026A

Yield strength, Environmental effects
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A

Yield strength, Heating effects
The Effects of Double Austenitization on the Mechanical Properties of a 0.34C Containing Low-Alloy Ni—Cr—Mo—V Steel. 545-555A
Effect of Heat Treatment on the Microstructure, Tensile Properties, and Fracture Behavior of Permanent Mold Al-10 wt.% Si-0.6 wt.% Mg/SiC/10p Composite Castings. 2247-2263A

Yield strength, High temperature effects
Elevated Temperature Fracture of RS/PM Alloy 8009. I. Fracture Mechanics Behavior. 365-379A
The Workability of Commercial and Experimental 0.6% Carbon Low Alloy Steels in the Temperature Range of 650-870°C. 827-837A

Yield strength, Microstructural effects
Precipitation Effects During Hot Deformation of a Copper Alloy. 257-266A
Ordering and Mechanical Strength in $L1_2$ Cubic Titanium Trialuminides. 449-451A
Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate. 1025-1031A
Temperature and Microstructural Dependence of the Deformation of a High Niobium, Titanium—Aluminum Alloy. 1667-1679A
Microstructural Analysis of Fracture Toughness Variation in 2XXX-Series Aluminum Alloy Composites Reinforced With SiC Whiskers. 2213-2223A

Yield strength, Pressure effects
The Effects of Hydrostatic Pressure on the Compressive Mechanical Behavior of $L1_2$ Al_3 Ti-Based Intermetallic. 1703-1711A

Yield strength, Radiation effects
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A

Yield strength, Stress effects
Behavior of Nickel-Base Superalloy Single Crystals Under Thermal—Mechanical Fatigue. 99-109A
Analysis of Thermally Induced Stress and Strain in Continuous Fiber-Reinforced Composites. 415-425A
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A
Evaluation of Homogeneous Compression Flow Curves Using Square Cross-Sectioned Specimens. 1095-1097A
Hydride Embrittlement in Zircaloy-4 Plate. II. Interaction Between the Tensile Stress and the Hydride Morphology. 1199-1208A
Stress-State Dependence of Strain-Hardening Behavior in 2014 Al/15 vol.% Al_2O_3 Composite. (Conference Paper) 2049-2061A
Flow Instabilities and Fracture in Ti-6Al-4V Deformed in Compression at 298-673K. 2173-2179A

Yield strength, Temperature effects
Behavior of Steels Near the Incipient Melting Temperature. 125-133A

Yield stress
See Yield strength

Youngs modulus
See Modulus of elasticity

Ytterbium, Binary systems
Formation and Stability of Metastable Structures and Amorphous Phases in Pu—V, Pu—TA, and Pu—Yb Systems With Positive Heats of Mixing. 1579-1590A

Yttrium, Alloying elements
Supersaturation of the Al_2Y Laves Phase by Rapid Solidification. 230-233A

Yttrium, Quaternary systems
Thermodynamic Study of $BaCuO_2$ and $BaCu_2O_2$. 385-389B

Yttrium, Reactions (chemical)
Solubility and Thermodynamic Properties of Y_2O_3 in LiF—YF_3 Melts. 91-96B

Zinc, Alloying elements
Effect of Alloying Elements on the Solidification Characteristics and Microstructure of Al—Si—Cu—Mg—Fe 380 Alloy. 437-448A
On the Prebainitic Phenomenon in Some Alloys. (Conference Paper) 1941-1946A

Zinc, Binary systems
Multiphase Binary Diffusion in Infinite and Semi-Infinite Media. II. On the Numerical Calculation of the Rate Constants for Formation of Product Phases. 753-761A

Zinc, Coatings
Computer Algorithms for Radiometric Measurement of Temperature During the Galvanneal Process. 449-462B

Zinc, Extraction
Thermal Treatment of Complex Sulfide Ores in N_2 and H_2 Atmospheres: a New Approach for the Extraction of Their Valuable Elements. (Review) 193-205B
The Ferric Fluosilicate Leaching of Lead Concentrates. I. Kinetic Studies. 473-480B

Zinc, Ternary systems
Thermodynamics of the Iron)Carbon)Zinc System. 569-578B

Zinc base alloys, Mechanical properties
Effect of Iron on the Superplastic Deformation of Zn-22%Al. 2391-2401A

Zinc compounds, Coatings
The Effect of Steel Chemistry on the Formation of Fe-Zn Intermetallic Compounds of Galvanneal-Coated Steel Sheets. 721-730B

Zinc plating
See Galvanizing

Zirconium, Alloying elements
Effect of Oxygen and Zirconium on the Growth and Superconducting Properties of Nb_3Sn. 203-212A
The Role of Oxygen and Zirconium in the Formation and Growth of Nb_3Sn Grains. 213-219A

Zirconium base alloys, Mechanical properties
Deformation Behavior of Irradiated Zr—2.5Nb Pressure Tube Material. 135-145A
Crack Initiation at Long Radial Hydrides in Zr—2.5Nb Pressure Tube Material at Elevated Temperatures. 993-1004A
Hydride Embrittlement in Zircaloy-4 Plate. I. Influence of Microstructure on the Hydride Embrittlement in Zircaloy-4 at 20 and 350°C. 1185-1197A
Hydride Embrittlement in Zircaloy-4 Plate. II. Interaction Between the Tensile Stress and the Hydride Morphology. 1199-1208A